Gas Journal

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GOD SAVE THE KING!

A WEEK ago when the national crisis was at its height and obviously nearing its climax, the "GAS JOURNAL" did not feel called upon to enter with comment into a situation which was changing hourly and which had by then been so clearly defined in Parliament and by the admirable handling of the more respected sections of our daily National Press.

This week it is a different matter. A solution of the situation—bitterly sad from whatever aspect it was regarded—has been found, and we should fail both in respect of the wishes of the National Industry we represent and of our own inclinations if, in recording the passage from one reign to another, we did not bid an affectionate farewell to one whom we had all learned to love, and offer an equally affectionate greeting to King George VI., who in the darkest hour unassumingly shouldered a burden of honour which duty and none of his own seeking thrust upon him, a burden of service to the Nation, the Empire, and the world which cannot fail to test the stoutest heart and the strongest determination. To our new King, then, heartfelt loyalty, and to the gracious lady who has become our Queen; and not only the loyalty which many of us feel as it were from upbringing and habit—almost from instinct—to the Throne, but also of a more than usually personal kind to one who was ready when the call came to step into a breach occasioned by matters so personally painful to himself, and to preserve for us the dignity of the Throne which we all desire so deeply in our hearts.

No thoughts on these sad events are complete without an expression of sympathy to our ever-honoured and beloved Queen Mary. Yet its simplicity must be the measure of its own sincerity; for how can we embellish the expression of our thoughts for one whose most queenly virtue has always been a typification, in the highest walks of life, of all that we most cherish of family life, and who yet has had to suffer such blows as have befallen Queen Mary in 1936. And without fear on this occasion of offending any susceptibilities we may, we feel sure, express to the Prime Minister, Mr. Stanley Baldwin, our gratitude and admiration for his conduct of our affairs in so grave and unprecedented a crisis.

Speeches of impressively homely simplicity and of oratorical brilliance in Parliament and elsewhere have discussed last week's events; prose of a standard seldom reached in these days has described them in every detail. From a thousand pulpits this week-end light was shed upon them from every angle, both spiritual and temporal. How, then, should we presume to do more than to express simply, as we have attempted to do, the sentiments which we know actuate one of His Majesty's most loyal Industries. In the words of the Archbishop of Canterbury: "A King has gone. God be with him. A King has come. God bless him, keep him, guide him now and ever." And let us end as we began—

GOD SAVE THE KING!

Coke Marketing

On several occasions we have pointed to the need for the Gas Industry as a whole to place its marketing of coke on a properly organized basis. The London and Counties Coke Association has shown what can be done by co-ordinated effort. As an example, we would refer to the year 1934-35, which had the warmest winter season we have experienced for many years. In the London and Home Counties area the demand for fuel was greatly below normal. The area was flooded with cheap coal. In spite of all, however, the Association, through its members, not only sold its full complement of coke production at a stable and economic price, but increased its annual turnover during that year by a matter of 400,000 tons. Since that time, of course, the position of the coke market has changed. Due to the activities of the steel industry, the demand for furnace coke for the time being exceeds the capacity of the coke ovens which are its natural source of supply. Furnace coke to the tune of some millions of tons, previously competing with gas coke, has been withdrawn to fill the needs of the steel industry.

At the moment the Gas Industry is enjoying a good coke market, and there is real danger of complacency. Market conditions will not remain as they are. To meet the demands arising from the activity of the steel industry, the coke oven interests are naturally increasing their productive capacity, and it is evident that the capacity of coke oven plant is growing continuously out of balance from the point of view of the likely demand for pig iron. Sooner than perhaps some think, coke oven coke will return to the domestic and industrial market, and if the position is not safeguarded the stability of the general coke market will be upset. Again, there is a growing demand for sized coal, and the quantity of fines which are being produced at the collieries is increasing, and coke oven development is now being undertaken not with the primary object that the production shall be made for the blast furnace, but with the aim that it shall be provided for the domestic markets. The coke oven industry knows well enough that, by modifying its process, it can supply adequate and suitable coke for all purposes for which the Gas Industry now supplies it. It seems obvious that some form of organization is an urgent necessity. Yet, apart from the Association in London and two other areas, little progress has been made by the Industry as a whole to formulate coke policy on co-ordinated lines.

We refer to this matter again in view of the Paper which we publish this week by Mr. W. L. Boon, General Manager to the London and Counties Coke Association, in which the Author maintains that it is a logical thing to anticipate that there will be some future alliance between the Gas Industry and the coke oven industry not only from the aspect of marketing its coke, but from the view of absorbing the gas produced at coke ovens. "On the coke side," he says, "there is every opportunity for a reciprocal alliance which would be effective not only from the point of view of stability in sales, but from the aspect of building up new markets and allocating in a wider degree the proper fuel for these markets, whether it be produced by the Gas Industry or by the coke ovens. The distribution of coke co-ordinated in this way would be beneficial not only to the producers, but equally so to the consumer. Economic necessity is dictating a co-operative policy in most of our large industries, and collective action in the coke industry would seem a sensible move towards the common good." We expressed the opinion in these columns last August that co-ordination in the manner suggested would constitute the best possible preparation of our markets in advance. We believe that apathy rather than actual opposition to the principle of co-ordination is delaying the working out of an acceptable formula.

Uniformity and Sizing

Mr. Boon's Paper should be studied and his advice acted upon. In regard to coke deliveries, he suggests that "uniformity" should be written in large red letters in our works; red letters because lack of uniformity spells danger. We have long insisted on this. For long, too, have we urged the general adoption of standard sizes and nomenclature for cokes. There is no adequate reason why odd sizings and designations which occur variously in almost every district should be maintained. Mr. Boon asks that the Industry should adopt the sizing and nomenclature which have proved adequate for all purposes of trading in the London area. The appliances and purposes for which coke is used are the same, and if the standard sizings of the London and Counties Coke Association have been found adequate, there seems no reason why they should not be adequate elsewhere. It would certainly be of value to coke appliance makers, who, as things stand at present, do not know for what to legislate when designing their equipment. Then, as regards coke quality, only recently has the Industry paid heed to the potential revenue which lies in the greater development of its solid smokeless fuel. We cannot hope to sell an inferior product in a high-class market, neither can we expect high-class revenues from low-class selling. The possibilities of selling quality coke in the domestic field are enormous. There is an insistent and increasing demand for smokeless fuel for the open firegrate. Special grates for burning "ordinary" gas coke provide one means of satisfying the demand; and something of the order of 100,000 coke fires are now being installed each year within the area of the London and Counties Coke Association. At the same time, an ideal will have been achieved when the Gas Industry is able to supply economically, and without any adverse repercussions on the sale of gas, a smokeless fuel which will give satisfaction in any type of grate. During the past few weeks we have published the results of a considerable amount of work recently carried out with this end in view. It is to be hoped that investigations at present in progress will yield fruitful results. Whatever these results, however, much remains to be done by quite a number of undertakings in preparing high temperature gas coke for the market and selling it with enthusiasm and intelligence. No joint organization can, of course, remove from the individual undertaking the need for effort in its own area.

Salesmanship

The increasing importance attaching to the business of coke selling brought with it a recognition, at any rate within the area of the London and Counties Coke Association, of the fact that the *coke* salesman was an entity entirely distinct from the *gas* salesman. The enormous growth in recent years of the domestic as well as the industrial coke market has led most progressive-minded gas undertakings to appoint person-

nel to deal exclusively with this sphere of their activities—men particularly trained in the many ramifications of coke selling.

With a view to assisting the coke salesmen employed by member undertakings, the L.C.C.A., in April, 1934, formed a Coke Salesmen's Circle, whose successful work since that time has been of inestimable value to those who have joined it—and that it is a very live organization will have been gathered from the reports of its proceedings which have appeared from time to time in the columns of the "JOURNAL." So rapid, indeed, has been the development of the Circle that, with a present membership of no less than 130, it has been considered opportune to release its management to some extent from the ægis of the L.C.C.A. and set up its constitution on regular lines with rules enabling it to govern its own affairs and to elect its own officers and committee. It was wisely appreciated, however, that no severance from the parent body was desirable in an organization so closely linked with the activities of the L.C.C.A., particularly as that Association have generously consented to continue to support its work both financially and otherwise. And so, while now largely in a position to direct its own activities, the Circle is fortunate in maintaining the valuable link with the Association through the presence, ex-officio, on its Committee of the General Manager of the L.C.C.A. and in having for its President the Chairman for the time being of the Central Committee of that body.

In a future issue we shall report the proceedings of the First Annual Meeting of the Circle, at which the new officers and Committee were elected, and we would express the hope that under its new constitution the organization will go on from strength to strength in its important work of assisting towards a still better understanding of the subject of coke selling.

Coke Oven Gas

REVIEWING the latest Board of Trade Return relating to authorized gas undertakings in Great Britain, we called attention to the increasing use of coke oven gas which has been a feature of the Return during recent years. The quantity of gas bought from owners of coke ovens and distributed by statutory gas undertakings in 1935 was 20,455 million cu.ft., or 12·4% more than in 1934. In the latter year 33 undertakings purchased coke oven gas; the figure increased to 40 in 1935. One of the latest recruits is the Darlington Gas Department. The agreement comes into force in April of next year, and the Corporation contracts to take the whole of its requirements of gas up to a maximum of 4 million cu.ft. a day. In this case the ovens are 16 miles from the Darlington Works, and in our issue last week Mr. J. F. Lord gave an account of the laying of the necessary main and of the other preparations made for the change-over to coke oven gas. The main chosen for the conveyance of the gas at 20 lb. per sq.in. inlet pressure is of spun iron pipes, flexible joints being employed. To cater for any interruption in the supply from the coke ovens carburetted water gas plant of a capacity equal to the present daily maximum output is arranged for, this plant consisting of two sections, thus reducing the risk of mechanical breakdown causing a cessation of gas manufacture. In the absence of costs, Mr. Lord's Paper, which was given at a meeting of the Auxiliary Section of the North of England Gas Managers' Association, is necessarily incomplete. We hope that later Mr. Lord's account will be supplemented by figures of cost, for we have no doubt that in the result the scheme will prove of mutual benefit to the coke oven owners and the gas consumers of Darlington.

The Shewring Fund

As was announced in our issue of Nov. 25, the promoters and managers—Messrs. F. G. Shaw, W. W. Townsend, and J. Bridge—have decided to close the Fund immediately after Christmas. This is therefore the last opportunity we shall have of appealing on behalf of a cause the details of which are sufficiently well known through the personal efforts of the promoters, and through the greatly appreciated support which our contemporaries the *Gas World* and the *Gas Times* have given to our own publicity.

That the appeal has met with widespread sympathy is evident by the fact that a sum of more than £900 has been raised mainly by a large number of comparatively small individual donations. This, our final appeal, is that the Gas Industry shall so rise to the occasion at this Christmas season as to place at the disposal of Mr. Shaw and his collaborators at least one thousand pounds for the benefit of the widow and children of the late Harold Shewring. As has been made quite clear from the beginning, all expenses are guaranteed so that every individual donation will be available in full to help them in the distressed circumstances in which they have been left. Time is short. Please make your cheques payable to "GAS JOURNAL," crossed "Shewring Fund Account." Any donation, however small, is welcome.

Say It With Gasholders

THE Industry is, we are glad to note, becoming rapidly more appreciative of the value of gas-works buildings for the prominent display of publicity matter, to judge from the many unexpected vantage points from which the merits of our fuels are—sometimes literally—screamed from the house-tops. Gas undertakings have, of course, an unfair advantage in this respect, for their various plant offers vast expanses of unlovely surface to the unwilling gaze of a long-suffering populace. Life can be made so much happier for those countless thousands whose eyes continually wander fascinated to the bulky outlines of our gas-works buildings by a few kind words carefully conceived and skilfully executed thereon—for instance, Mr. Therm, accompanied by some well-chosen slogans, dancing the light fantastic on the retort house roof, a weather report or the latest fat stock prices on the gasholder, or even a few caricatures of the gas undertaking's officials on the sides of the coke bunkers. Indeed, commendable endeavours are being made in certain quarters to render gas plant less objectionable to members of the public who probably never greatly interested themselves in supporting local amenities until somebody erected a gasholder which they could just see by craning their necks from the bathroom window. On the other hand, this matter must be approached with discretion, for we must not lay ourselves open to the stigma of vandalism by improperly defacing the ecclesiastical structures which in some towns so ably disguise the gas-making installation, or gas managers may find the Society for the Preservation

of Urban Amenities on their tracks—which would never do.

Gasholder slogans are growing more common in many places; but we are reminded by a recent issue of *Punch* of an obvious disability in one important respect. Pointing out the advantages of a room she was offering to a prospective boarder, the seaside landlady observed that "there was a nice view of the sea when the gasometer was down!" And, be it noted by our advertising experts, when the gasholder is down, so is the message which it bears. It is not a particularly elevating sight, either, to see Mr. Therm, like Neptune, rising wet and rust-bedraggled after a few days' immersion in the water tank—cheerful as he may appear to be about it. In our news columns a few weeks back, incidentally, we had from Stoke-on-Trent an excellent example of opportunism in gasholder propaganda; but we are sure Mr. Mackay will forgive our flight of fancy when we picture him saying to his staff on the morning of the great day: "Up with No. 1 holder, boys; there's a home match this afternoon."

Again, railside messages are read by a wide travelling public—at any rate, by those who forget to purchase literature to while away the long journey. But one must not fall into the obvious trap here of under-estimating the speed of our wonderful British railway trains—at least, some of them. We have noticed not a few cases where gas-works plant adjoining main railway lines carries such a superabundance of information concerning the merits of gas that it necessitates several journeys in anything but the slowest of local trains properly to assimilate it all. And we do not want to have eager passengers pulling the communication cord in order to finish reading the messages so admirably set out.

We imagine, too, that spirally-guided gasholders must be exceedingly trying at times to the publicity enthusiast. The snappy slogan proudly displayed to the world at large on Saturday afternoon is singularly liable—if it has not disappeared altogether—to have switched its message to the irreverent gaze of the shift foreman on the carbonizing plant by mid-day on Sunday. We think that the first prize in this connection, however, goes to the Air Ministry, who, in all seriousness we understand, once suggested to a certain gas manager that he should have a North arrow painted on the crown of his spiral holder for the guidance of airmen! The peculiar wanderings of the magnetic pole would, we feel sure, have proved most entertaining to the pilot who had lost his bearings. Indeed, the gas manager is reputed to have replied that if no objection was taken to a deviation of 45° in the direction of the arrow, he would be pleased to do so. The Ministry decided, however, not to press the matter.

Forthcoming Engagements

Dec.

11.—I.G.E.—Gasholder Committee, 2.30 p.m.

17.—I.G.E.—Refractory Materials Joint Committee, 2.30 p.m.

17.—S.B.G.I.—Council Meeting at 2.30 p.m.

18.—London and Southern Juniors.—Meeting and Paper by J. Grayston.

Jan., 1937.

2.—London and Southern Juniors.—Visit to Fuel Research Station, Greenwich.

5.—I.G.E.—Research Executive Committee, 2.30 p.m.

9.—Scottish Eastern Juniors.—Visit to Alder & Mackay, Ltd., Edinburgh.

9.—Scottish Western Juniors.—Paper by W. Gledhill, of Stirling, "Development of a Gas-Works Amalgamation."

Personal

Retirement of Mr. E. B. Tomlinson.

On the completion of 39 years' service with the Birmingham Gas Department, Mr. E. B. Tomlinson, Engineer-in-Chief, has retired on superannuation.

Mr. Tomlinson received his early training with Messrs. C. & W. Walker, Ltd., of Donnington, Salop, where he spent eight years in their constructional shops and drawing office. He was then for two years with Messrs. Robert Dempster & Sons, Ltd., of Elland, as leading draughtsman, and in 1897 obtained the position of Chief Draughtsman at the Windsor Street Works of the Birmingham Corporation Gas Department under the late Mr. Charles Hunt. In 1902 Mr. Tomlinson was appointed as Superintendent at the Adderley Street Works under the late Mr. Henry Hack. In 1907 he became Works Engineer at the Windsor Street Works, and after eight years in this capacity he was appointed Engineer at Nechells Works. In 1929 he succeeded to the position of Engineer-in-Chief to the City of Birmingham Gas Department, whose annual output was then nearly 15,000 million cu.ft. He was elected President of the Midland Association of Gas Engineers and Managers in 1932.

Mr. Tomlinson was entertained on Dec. 3 to a complimentary dinner, at which the Chief Officers of the Department were present.

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Mr. G. C. Pearson, who succeeds Mr. Tomlinson, commenced his career in the Gas Industry with the Birmingham Gas Department in 1901, under Dr. H. G. Colman. From 1908 to 1915 he was Superintendent of the Coal Testing Works, during which period he was engaged in investigating the comparative advantages of the different systems of retorts, liquid purification, coal valuation, &c., under Dr. W. B. Davidson and Dr. E. W. Smith. In 1915, Mr. Pearson was appointed Works Engineer at the Windsor Street Works of the Birmingham Gas Department, under Mr. John Foster; and in 1919 he became Engineer at those Works, in which capacity he has served up to the present time. Mr. Pearson is a Silver Medallist of The Institution of Gas Engineers.

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We learn that Mr. G. A. Leitch has been appointed Chairman of Cannon Iron Foundries, Ltd., in succession to the late Sir F. H. Pepper.

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The appointment of Mr. F. Backhouse to the Central Administration Executive Staff of the United Kingdom Gas Corporation as Director of Display and Publicity is announced. He will take up his duties on Jan. 1.

For the past three years Mr. Backhouse has been Display Manager to the Parkinson Stove Company, and for two years before that he was employed in a similar capacity by the Stretford and District Gas Board. He was the compiler of the Parkinson "Book of Display," a practical reference for display men. He has received an award each year in the *Daily Express* National Display Competition, including two prizes in the 1936 competition.

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The wedding took place at St. Paul's Church, Sketty, Swansea, on Saturday, Dec. 5, of Mr. David Stanley Davies, only son of Mr. D. H. Davies (Engineer and Manager of the Herne Bay Gas Company) and Mrs. Davies, to Miss Edna Mary Johns, only daughter of Mr. W. H. Johns (Engineer and Manager of Swansea Gaslight Company) and Mrs. Johns.

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We learn that Mr. James Kincaid is about to retire from the position of Engineer and Manager of the Kirkcaldy Gas Department.

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Mr. S. F. Corby has been appointed to the Board of General Gas Appliances, Ltd., which Company's share capital was recently acquired by Allied Ironfounders, Ltd. For the past seven years Mr. Corby has been associated with Bratt, Colbran, Ltd., first as Director of that Company and latterly as Resident Director of Park Foundry (Belper), Ltd., the Associated Company of Bratt, Colbran, Ltd.

Obituary

The death occurred on Dec. 2 at the age of 74 of Mr. George C. Parnaby, who, before his retirement in 1924, was for many years Products Salesman to the South Metropolitan Gas Company. Before joining the Company he was with Messrs. Forbes, Abbott, & Lennard in a similar capacity.

Correspondence

Dilution of Horizontal Coal Gas

SIR,—In your issue of Dec. 9, in the discussion on Mr. Deas' Paper on the Dilution of Horizontal Coal Gas, I notice an error which I shall be glad if you will correct. I am reported as saying that when deciding between producer gas and waste gas there was nothing but the difference in specific gravity to be considered. What I actually said was that when blue water gas, producer gas, and waste gas were under consideration as suitable diluents there was *nothing to choose between them* as regards specific gravity.

The final sentence in my comments concerning the enrichment of water gas does not read quite correctly. The sense of my remark was that "one must be careful in considering cases where producer gas was being substituted for C.W.G. *because* it was the enrichment of the water gas which supplied the hydrocarbons necessary for the reaction which brings down the gum."

Yours, &c.,
G. L. BRAIDWOOD.

Gas-Works,
Beckton, E. 6.
Dec. 11, 1936.

Copper Tube for Service Pipes

SIR,—I have read with considerable interest Mr. J. Barker's Paper on the use of copper tube for service pipes, appearing in your issue of Sept. 16, 1936.

As I pointed out in my Paper on the subject of soil corrosion ("JOURNAL," Feb. 2, 1936) copper is more economical than steel to lay in soils with relatively low *p*H values in the absence of stray currents. Presumably the excellent results which Mr. Barker has experienced at Nairn are due to the absence of stray current electrolysis.

If, on the other hand, electrolysis hazards do exist in the district served by the Nairn Gas Light Company, it would be interesting to learn how the corrosion of the copper services is mitigated, since the relative amounts of copper and iron corroded by an electrical current in unit time under identical conditions is 1·15-2·3 copper to one of iron. Are insulated joints between the main and service pipe used for the purpose, and if so, what type is found to be most effective?

It will be appreciated if Mr. Barker will explain the above points.

Yours, &c.,
T. W. HUGHES,
Distribution Engineer.

North Shore Gas Company, Ltd.,
North Sydney,
N.S.W.
Nov. 6, 1936.

News in Brief

For the Purchase of Gas Appliances, the Wallasey Corporation is to make application to the Ministry of Health for sanction to borrow £55,000.

Applications are Invited by the Cambridge University and Town Gas Light Company for the position of Sales Manager. Further particulars will be found in our advertisement columns.

Free Gas Fires to all consumers was suggested in committee at Hamilton last week. The Gas Committee instructed Mr. J. B. Ferns, Engineer and Manager, to submit a report on the effect of such a proposal.

The Salary is Not Revealed by the "progressive company with an annual make of 800 millions" who invite applications for the post of Engineer. Further particulars of this appointment will be found in our advertisement columns.

Both Gas and Electricity, the Manchester Corporation Housing Committee has decided, shall be installed in the residential flats which it is proposed to erect at Woodlands Road, Cheetham, and also in all future residential flats to be erected by the Committee.

Bread Week was celebrated in Leamington, Warwick, and Kenilworth from Dec. 7 to 12. At the cookery demonstrations in the Salisbury Hall, Warwick Street, Leamington, the cooking equipment was supplied by the Leamington Priors Gas Company.

The Recent Offer by tender of 5% preference stock in the water undertaking and 5% debenture stock in the gas undertaking of the Sheringham Gas and Water Company was over-applied for, the average prices realized being £122 17s. 3d. and £121 7s. respectively.

Extension to the Carbonizing Plant at Alloa Gas-Works was considered at the Dean of Guild Court on Dec. 7, and plans were passed relating to an extension of the Works. Fourteen vertical retorts are to be installed at an estimated cost of £35,000. The estimated amount of the daily output of the installation is 1,500,000 cu.ft.

The Winning Designs for central baths, proposed to be built in Leeds at a cost estimated at £110,000, were announced after a meeting of the Corporation Baths Committee last week. Among the designs commended by the Assessor was that of Mr. R. S. Shapley, son of Mr. C. S. Shapley, Engineer and Manager to the Leeds Gas Department. Mr. R. S. Shapley is in practice at 2, Queen's Square, Leeds.

Mr. F. H. G. Higton writes to draw attention to an error which crept into our report of his remarks in connection with Mr. C. A. Deas' Paper before the Southern Association on Nov. 27. On p. 739 of last week's issue Mr. Higton should have been reported as saying that Engineers of small works would find that, even with the use of coke, the cost of the producer gas was as low as Mr. Deas had shown.

A Final Dividend of 10% is recommended by the Directors of the Cannon Iron Foundries, Ltd., making, with the interim distribution, a total of 15%, less tax, for the year to Sept. 30 last. The Annual Meeting will be held in Deepfields, near Bilston, on Dec. 31, at 11.30 a.m.

The Import Duties Advisory Committee give notice of application for increases in the import duties on iron and steel tubes, cased with brass, copper, or other non-ferrous metal. Any representations which interested parties may desire to make in regard to these applications should be addressed in writing to the Secretary, Import Duties Advisory Committee, Shell-Mex House, Strand, W.C. 2, not later than Dec. 31.

The Third Lecture of the season to the Outdoor Staff of the Sheffield Gas Company took place at the chief showrooms, 15-17, High Street, on Friday last, Dec. 11. Dr. Winter, of Radiation Ltd., gave an address entitled "Gas as a Fuel." During the evening an interesting number of lantern slides were shown and comparative data given referring to the heat values in various types of fuel. The address was followed with keen appreciation by the large number of members present.

To Cope with Increased Consumption, Stockport Corporation proposes to erect a complete retort house to accommodate twenty-four 82-in. vertical retorts, of which 12 are shortly to be erected. The coke hoppers are to be enlarged to double their capacity. Alderman Sir Thomas Rowbotham stated at the Town Council that this year there had been an increase of 6% in consumption following a similar increase last year. This winter the carbonizing plant would be working at full capacity.

For Sale by Tender the Directors of the Godalming Gas and Coke Company, Ltd., are offering £13,350 4% redeemable debentures in debentures of £50 each, to be redeemed at par on Jan. 1, 1962. These debentures form part of a total issue of £18,000, and the balance of £4,650 is being issued to certain holders of 6% debenture stock due for repayment on Jan. 1, 1937, in substitution for their holdings. The minimum price of issue is 102%. The tenders must be received before 11 a.m. on Dec. 21.

A Big Step Forward in their Gas *versus* Solid Fuel campaign should be made by the Newcastle and Gateshead Gas Company with an illustrated brochure, "100% Comfort in Your Home," which they are enclosing with a sales letter to several thousand of their best customers. In its pages the drudgery and dirt entailed by burning solid fuel are contrasted with the service, economy, and comfort of the modern "all-gas" home. Comparative costs are given for five and six-roomed houses in the Newcastle area where gas has entirely replaced solid fuel for cooking, heating, and hot water services, while a reply-paid questionnaire card supplied by the Company brings estimates and expert advice on the advisability of conversion in the particular circumstances of the customer. The brochure is well turned out in two colours, and makes an extremely attractive proposition of all-gas service.

The Capital of the Metropolitan Gas Company of Melbourne has recently been increased by the issue of 15,000 new shares of £5 each. These shares, Messrs. William Coward & Co., Ltd., inform us, were offered by public auction in Melbourne on Oct. 29, and the whole was disposed of at an average price of £13 12s. 1d. per share.

For the New Coal-Handling Plant which we announced last week is to be installed at Belfast, the Belfast Gas Committee has accepted the tender of Messrs. West's Gas Improvement Co., Ltd., Manchester. The tender of Messrs. R. & J. Dempster, Ltd., Manchester, for the supply of condenser tanks has been accepted. Tenders for condensers, gasholder, and electric generating plant are under consideration. The gas output in Belfast is steadily mounting. The gas sent out from April 1 till Nov. 30 last amounted to 2,751,821,000 cu.ft., an increase of 41,838,000 cu.ft., or 1·54%, compared with the corresponding period last year.

"Christmas Fare" Demonstrations were held under the auspices of the Leamington Priors Gas Company last week in the large hall above the showrooms in Regent Street. The demonstrator was Miss M. Harris, N.S.T.C., M.C.A., and she used "Flavel" gas cookers with automatic oven heat control. The demonstrations were opened on the Monday afternoon by the Mayoress (Mrs. C. H. Southorn). Alderman H. Mason, J.P. (Chairman of the Gas Company), who presided over a very large gathering of interested ladies, said that the good attendance he had the pleasure of addressing was indicative of the increased interest taken in gas cooking, and was an echo of the success which attended the demonstrations in the previous year. A cake-baking competition was held and prizes were awarded at the close of the demonstrations.

The Leipzig Fair Administration President, Dr. Koehler, recently stated to a representative that the Engineering Exhibition next spring will be four times more extensive than that of the year 1932 and will even exceed the 1936 Spring Fair by about 15%. The new arrangement which will be followed in future removes the International Trade Exhibition into the town. The concentrating of the various branches necessitates a separate hall for the office requisites industry and for the textile, laundry, and sewing machines industry. In order to provide the requisite accommodation it will be necessary to build new halls. As these will not be ready in time for the next Spring Fair a large marquee is being erected for the time being. The samples fair in the inner town has also been considerably enlarged, notably in view of the exhibitions of raw materials.

Amalgamation and Grouping

Associated Gas and Water Undertakings, Ltd.

The Directors of Associated Gas and Water Undertakings, Ltd., announce that a majority interest has been acquired in the Chesham and District Gas Company. Recently (as announced in the "JOURNAL" for Dec. 2) the Yorktown (Camberley) and District Gas and Electricity Company was acquired by the Company.

The Directors have also made offers to purchase a controlling interest in the Guildford Gas Light and Coke Company and the Farnham Gas and Electricity Company.

The shareholders or stockholders in these Companies have been offered either cash or shares in the Associated Gas and Water Company in exchange for their holdings, and it is now proposed to increase the authorized share capital of the Company in order to provide sufficient shares to enable the Company to carry out the terms of these offers and in order to provide for future capital requirements.

Accordingly, an Extraordinary General Meeting will be held on Jan. 1, 1937, at which resolutions will be proposed to be passed to increase the authorized share capital of the Company to £2,500,000 by the creation of 750,000 irredeemable 4% cumulative preference shares of £1 each and 750,000 additional ordinary shares of £1 each.

United Kingdom Corporation Acquisitions.

East Ardsley.—Close Brothers, Secretaries of the United Kingdom Gas Corporation, announce that the Corporation has acquired 95·5% of the ordinary capital of the East Ardsley Gas Company. Of the purchase consideration, £4,718 was taken in shares of the Corporation, bringing the total issued share and loan capital of the Corporation up to £2,760,115.

York.—The Corporation's offer to the holders of consolidated ordinary stock of the York Gas Company had on Monday been accepted in respect of 70% of such stock.

With these two additions the United Kingdom Corporation will control 21 gas undertakings in the Yorkshire and Lancashire Districts.

The National Gas Council

Central Executive Board

A meeting of the Central Executive Board of the National Gas Council was held at the Grosvenor Hotel, Victoria, S.W. 1, on Tuesday, Dec. 8, at 11 a.m.—Sir DAVID MILNE-WATSON, LL.D., D.L. (President), in the chair.

Coal.—Consideration was given to the difficulties which are being experienced in various parts of the country with regard to the coal position, and resolutions from the various districts dealing with this matter were under consideration.

Parliamentary—(a) Enquiry with regard to Gas Charges.—A report was submitted with regard to the setting up by Parliament of a Joint Select Committee to enquire into the powers of regulating charges possessed by gas companies authorized to operate under the basic price system. The first meeting of the Joint Committee had been fixed to take place on Tuesday, Dec. 15.

(b) Trunk Roads Bill.—A report was submitted with regard to the objects of this Bill and the endeavours which had been made to ensure that the rights of gas undertakings were maintained.

Income-Tax—Rates of Depreciation in connection with Stoves and Meters.—It was reported that a memorandum with regard to rates of depreciation had been approved by a Committee of the Council, and that this could now be submitted to the Inland Revenue.

Appointment of Officer for the National Bodies in Scotland.—The appointment by the Scottish Committee of a resident officer in Scotland was reported and approved.

Date of Next Meeting.—It was decided that the next meeting of the Board should be held on Tuesday, Jan. 12, 1937, at 2.30 p.m.

"Thousand Cakes" Competition

Distribution of Prizes

Miss Zena Dare, who is now playing in "Careless Rapture" at Drury Lane Theatre, presented the prizes in the "Thousand Cakes" Competition sponsored by the South Metropolitan Gas Company and Messrs. H. Holdron, Ltd., Peckham, S.E. 15. Introduced in an amusing speech by Mr. E. V. Evans, Joint Manager of the South Metropolitan Gas Company, Miss Dare was enthusiastically received; she went on to thank Mr. Evans for the charming things he had said about her and added that she congratulated the prizewinners, more particularly as success in housewifery was a quality she had always admired.

Mr. R. J. Tellam, General Manager of Holdrons, supporting Mr. Evans, said that over 1,100 cakes were received and that judging was difficult because of the very high standard of the entries. The final places were awarded by Mr. J. K. Gawith, of Messrs. J. Lyons & Co., Ltd., so that they could rest assured that the greatest care had been taken. The winning cake had scored 97 out of a possible 100 points. It was also interesting to note that between 700 and 800 competitors had agreed to send their cakes to various charitable institutions in South London. The first prize winner presented her cake to Miss Zena Dare.

Low Temperature Carbonisation, Ltd.

Further Improvement Recorded

Following the raising of the dividend from 3½% to 6%, the full accounts of Low Temperature Carbonisation, Ltd., show that earnings have undergone a further improvement. Trading profits for the year ended Oct. 31, 1936, including interest and dividends, have risen from £78,480 to £97,686, so that, after allowing for the higher dividend, the Board has carried forward £11,997, against £9,096 brought in. The increase in profits has been achieved despite the fact that no revenue was received during the period covered by the accounts from the new Bolsover Works and that the Company had the benefit of only six months' trading of the new oil and chemical plant at Barugh. It is anticipated that a full year's revenue from these two sources will result in a further substantial increase in earnings.

In the balance-sheet the holding of cash is shown to have virtually doubled at £126,945, against £65,693, but the gilt-edged first folio has fallen from £371,017 to £213,435. A sharp rise in the trade creditors item from £32,825 to £104,635 reflects work in progress at Bolsover, most of which has been paid for since Oct. 31. It is stated that the new Works at Bolsover began production on Nov. 12 and that 144 retorts are already in operation. As the output has been sold well ahead, negotiations are now proceeding for the erection of further plant.

Changes of Address

British Road Tar Association.

We are informed that the offices of the British Road Tar Association are now at Gas Industry House, 1, Grosvenor Place, London, S.W. 1. The telephone number is Sloane 6119 (2 lines); telegrams: "Broatar, Knights, London."

Women's Gas Council.

The Women's Gas Council have relinquished their temporary address, and are now at Gas Industry House, 1, Grosvenor Place, S.W. 1. The telephone number is Sloane 4554.

Kelty Gasholder Inaugurated

Company's Progress

A new £5,000 gasholder was inaugurated on Dec. 10 at Kelty, Fife, by Mr. William Izatt, Vice-Chairman of the Kelty Gas Company, Ltd. The new holder has a capacity of 150,000 cu.ft., and is the third to be erected since the Company's operations began 30 years ago.

Speaking of the progress of the Company, Mr. Izatt said that the output had increased from 27 million cu.ft. when he joined 22 years ago to 60 million cu.ft. to-day.

Mr. D. G. Wilson, Dunfermline, Secretary of the Company, proposing "Kelty Gas Undertaking" at a subsequent social function, emphasized that the Company was peculiar in the respect that profits must be passed to the consumer.

Tributes were paid to the former Managers and to the present Official, Mr. D. Campbell, who had developed the Company's enterprise since he came to the village eight years ago. Mr. K. H. M'Neill, agent of Fife Coal Company, proposed the health of the Contractors. Mr. W. Lindsay Burns, Managing Director of Messrs. Henry Balfour & Co., Ltd., Leven, responded.

Westminster Technical Institute

Annual Prize Distribution

A pleasing opportunity for the gathering of many friends and well-wishers of the Westminster Technical Institute is provided each year by the prize distribution for the session. The distribution for the Session 1935-36 took place, by kind permission of the Gas Light and Coke Company, at the Horseferry Hall, Horseferry Road, S.W. 1, on Thursday, Dec. 10.

The Chair was taken by Sir Francis Goodenough, C.B.E. The Principal, Dr. J. N. Long, D.Sc.Eng. (Lond.), M.I.Mech.E., in the course of his remarks observed that the session had been a most satisfactory one and good progress had been recorded. The number of both students and "student-hours" had been a record for the Institute, the number of "student-hours" amounting to no less than 566,000. Dr. Long went on to give some interesting statistics of the materials used by students. He concluded by gratefully acknowledging the support he had received from various industrial and other firms. In this connection he was particularly thankful to the Gas Light and Coke Company.

Then followed a fascinating lecture by Mr. C. M. Kerr, A.M.Inst.C.E., Assistant Divisional Officer of the London Fire Brigade, on "The Organization and Equipment of the London Fire Brigade." With the aid of lantern slides, Mr. Kerr outlined the measures taken by the London Fire Brigade to ensure that absolute co-ordination existed between the various stations in the area. While a veritable host of facts and figures were provided by Mr. Kerr in a delightfully impersonal manner, perhaps the most consoling information was that within 20 seconds of a street alarm being operated the Brigade were on their way to the fire. The methods employed in fighting recent outbreaks, including the great fire at Colonial Wharf, Wapping, were described. A large number of interesting exhibits were displayed by Mr. Kerr and his staff. A hearty vote of thanks was accorded Mr. Kerr on the proposition of Mr. Stephen Lacey, M.Inst.C.E., who drew attention to the parallel between the work of the London Fire Brigade and that of the Gas Light and Coke Company, inasmuch as they were both great public services.

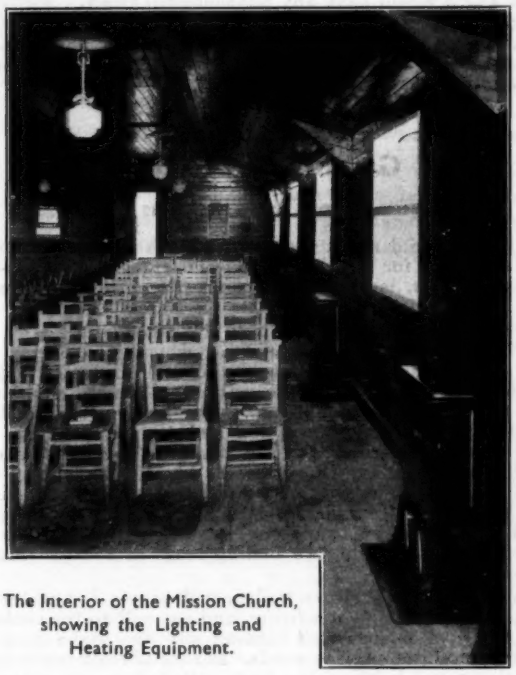
The Chairman then introduced Mr. R. W. Foot, General Manager, Gas Light and Coke Company, who presented the prizes—a formidable task which he performed with characteristic energy. On the proposition of the Chairman a hearty vote of thanks was accorded Mr. Foot, who suitably acknowledged the vote.

The Chairman also thanked the Mayor of Westminster, Councillor the Hon. Arthur Howard, J.P., for his presence. The Mayor, in reply, assured them that it gave him great pleasure to attend the prizegiving. Finally, the Chairman was thanked by Mrs. Hugh Dalton, of the L.C.C., who in a few racy words paid tribute to the great contribution the Gas Light and Coke Company were making to vocational education. In that respect she said she had been very favourably impressed with all she had seen at the new Watson House.

Gas Lighting and Heating for Mission Church

A Recent Sheffield Installation

In competition with electricity, the Sheffield Gas Company was successful in obtaining both heating and lighting contracts at the temporary Mission Church erected at Lodge Moor, Sheffield, which was dedicated by the Bishop of Sheffield last month. This Mission occupies the site where a church will eventually be built.



The Interior of the Mission Church, showing the Lighting and Heating Equipment.

The heating of the building is carried out by means of nine "Supervector" panel heaters, while the lighting consists of eight Sugg's chromium-plated "Streatham" lamps in the church, four of these being fitted with distance control so that they can be extinguished during the sermon. In the vestry is a similar lamp on switch control, while one of the same firm's "Holyhead" lamps is fitted over the entrance door, which can be controlled from inside the church.

Reporting the opening proceedings of the church, a local periodical remarked: There was a good congregation in spite of the inclement weather, but the little Mission Church was bright and warm.

Gas Journal Shewring Fund

Closing immediately after Christmas.

Donations are invited to the Fund, full particulars of which were given in the "JOURNAL" for July 22. The Management of the Fund is in the hands of Messrs. F. G. Shaw (Buxton), W. W. Townsend (Colchester), and J. Bridge (Elland). All expenses having been guaranteed, the whole of the sums received will be applied, without any deduction whatsoever, to the benefit of the widow and children of Harold Shewring, by whose tragic death earlier this year they were left in distressed circumstances.

Cheques should be made payable to the "GAS JOURNAL," and crossed "Shewring Fund Account." All donations will be gratefully acknowledged by the Editor, who is Treasurer to the Fund.

We are pleased to be able to announce that the total to date amounts to £929 10s. 4d.

Combustion Testing of Domestic Gas Appliances

New British Standard Specification

The British Standards Institution has just issued the British Standard Method for the Combustion Testing of Domestic Gas Appliances. This Specification provides for the combustion testing of cooking appliances, water heaters, and gas fires for domestic purposes.

The completeness of combustion is normally expressed as a CO/CO_2 ratio. The majority of gas appliances when used normally have a CO/CO_2 ratio of 0·001-0·005, dependent on type. To ensure a large margin of safety in use, appliances are tested under abnormal conditions. The purpose of this Specification is to lay down the abnormal conditions to be observed and the method of determining the CO/CO_2 ratio. The limit ratio under abnormal conditions is 0·02 and the concentration of carbon monoxide even then present in the atmosphere would be below that which would have any physiological effect.

Copies of this Specification (No. 717, 1936) may be obtained from the British Standards Institution, Publications Department, 28, Victoria Street, London, S.W. 1, price 2s. 2d., post free.

Gas in the Hospital

Herne Bay's Success

The successful result that can attend the presentation of a strong case for gas, backed by efficient and business-like sales methods, is amply proved by the encouraging news we have received from Mr. D. H. Davies, F.I.A.C., Engineer and Manager of the Herne Bay Gas Company.

The new Herne Bay Hospital, which was opened by Mr. Alex. H. Dence, President of the Hospital, leaves nothing to be desired in the way of up-to-date equipment for the treatment of patients. The heating and cooking arrangements are no exception and are cared for by gas and coke; such, however, would not have been the case had it not been for the initiative of the Herne Bay Gas Company. Originally the Architect had specified electricity for lighting and auxiliary heating, anthracite for cooking, and oil for hot water supply. The only part allotted to gas was the operation of two boiling rings in the two Sisters wards.

Now gravity-feed coke boilers will supply hot water for general heating and sterilizing, and gas will do the cooking. In addition, modern self-lighting gas fires have been installed in all the private wards. In case of electrical failure, auxiliary gas lighting has been installed in the principal corridors and wards.

"Fanfare"

First Issue of New W.G.C. Magazine

Rumours have been abroad for some little time past that the Women's Gas Council were contemplating the production of their own magazine; and now that No. 1 has made its appearance and we have had the opportunity of studying its contents, we must congratulate those responsible upon the excellence of this publication.

One should, perhaps, pay tribute at the outset to the Council for their courage in launching another vessel upon waters already overcrowded by a wide diversity of journals devoted to women and the home. Nevertheless, if subsequent issues maintain the high standard set by the first, they should have little difficulty in piloting their craft along the course of success.

In securing for the opening a seasonable story by no less an author than Warwick Deeping, *Fanfare*, as the magazine is entitled, stimulates an immediate reader interest, which is subsequently supported by a wealth of useful and entertaining matter touching upon many subjects very near the heart of the woman home-lover, whom it is the aim of this periodical to assist with suggestions and keep in touch with the work and pleasures of the modern world. In addition to a number of valuable recipes, including, of course, the Christmas pudding, No. 1 contains an interesting review of the work of the Invalid Kitchens of London, and the first of a series of articles specially written for amateur dramatic societies.

Unlike the majority of its contemporaries, *Fanfare* embodies a section devoted to news—this from Headquarters and branches of the W.G.C. in the form of an inset. Here is recorded the development and progress of the organization in all parts of the country. And as the W.G.C. grows so it is hoped *Fanfare* will grow. The more support it receives from members the wider will be its scope, and already plans are under consideration for improving subsequent issues, which, we understand, will have a page for children and another for men only—in order, apparently, that the Editor may feel sure that one page at least is read carefully by every member of the W.G.C.!

Fanfare is a good sixpennyworth, and will do much to stimulate interest in the excellent work of the Council, who are to be congratulated on now having a magazine of their own. We wish their new venture the success which it undoubtedly deserves.

Southport Home Service Exhibition

Session for the Blind

A Home Service Exhibition, comprising a display of gas appliances, cookery demonstrations, film shows, and health talks, was opened on Wednesday, Dec. 9, in the Cambridge Hall by the Mayor of Southport, Councillor H. W. Barber.

In declaring the Exhibition open, the Mayor said he was in the rather unique position in that practically all his business life had been spent in the electrical industry. However, he believed the revival in the Gas Industry was to a large extent due to the developments which had taken place in domestic appliances. There were exhibited wonderful examples of gas cooking appliances, and the manufacturers were to be congratulated upon the great strides made in this connection. The Mayor added that he believed there was room for both gas and electricity. He referred in gratifying terms to the Southport Corporation's Gas Estate and paid tributes to the Chairman and the Committee and the Engineer and Manager, Mr. J. H. Clegg.

The Chairman, Councillor W. Lea, said there was a selection of cooking appliances in the hall, corridors, and assembly room which visitors would do well thoroughly to examine. They were the finest, most reliable, clean, economical, and up-to-date appliances obtainable for the cooking of foodstuffs.

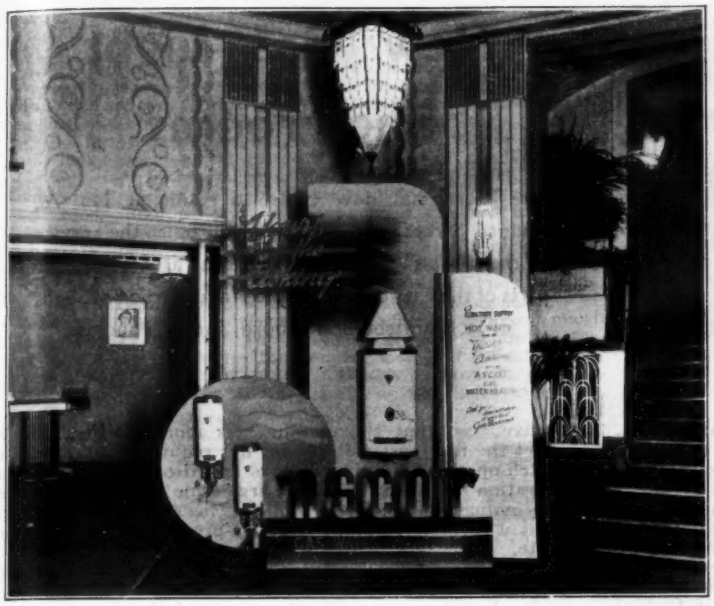
Councillor Houldsworth (Deputy Chairman of the Gas Committee), in seconding, said that Councillor Lea had mentioned the importance of well-cooked food and pure air in the consideration of health. Pure air was required for out-of-door and indoor habitation. If they gave more consideration to the reduction in the use of raw coal, they would be no worse off indirectly, as far as their pockets were concerned, but they would be considerably enriched in the provision of unpolluted oxygen and ozone. The domestic chimney was the greatest offender in the pollution of the atmosphere. There was no need for the outpouring of smoke, with its destructive chemicals, which could be recovered for a useful purpose if the coal were carbonized. A display of smokeless heating apparatus was on view there, which was labour-saving and clean to use in the house.

The Session on the following afternoon was attended by many blind people. Miss Mace, who is also blind, performed the opening ceremony with Alderman Aveling in the Chair. Alderman Aveling said it was rather an unusual kind of audience for a gas exhibition. Because people were blind it must not be thought they were helpless; blind people took as great an interest in life as any sighted person. They should congratulate the Gas Committee on their efforts. He (Alderman Aveling) believed that gas stoves could be used by anyone, and the thermostat was quite easy for the blind to use. Introducing Miss Mace, the Chairman said as soon as Miss Mace knew there were gas fires and stoves that could be used by the blind she consented to open one session of the exhibition. He was going to ask Mr. Clegg to give a talk to the blind at one of their lectures on the Gas Industry.

They were all agreed, remarked Miss Mace, that gas was a wonderful thing. Now there was a "Regulo" marked in Braille it told them how long food would take to cook by setting the "Regulo" at a certain point. It would be a good thing for the blind. What appealed to women about a gas stove or fire was that there were no dirty ashes to clear away.

Friday's Sessions included a cookery demonstration by Miss G. Hocken, of the Radiation Research Kitchen, of fish cooking by Miss M. Law, and of chocolate cookery by Miss M. A. Ashburner (Cadbury Bros., Ltd.). The exhibition will continue until Saturday, Dec. 19.

A Striking Gas Water Heating Link-Up



The attractive display shown in the accompanying photograph was staged recently in the vestibule of the Paramount Theatre, Manchester, by Ascot Gas Water Heaters, Ltd.

During two weeks, 10,000 specially printed leaflets were distributed to patrons of the cinema, who were greatly interested in the display, many questions being asked of the attendants at the Theatre, all of whom had been supplied with information regarding "Ascot" appliances, and details of where the heaters could be obtained or demonstrated.

The link-up was also arranged by various gas undertakings in the Manchester area, who displayed in their showrooms suitable panels supplied by the firm, all incorporating the theme "Yours for the Asking—Constant Hot Water by 'Ascot' Gas Water Heaters."

It is gratifying to learn that a definite increase of these water heaters in the Manchester district resulted from this advertising scheme.

La Foire de Paris

A Leading Trade Event of the Year

La Foire de Paris has now become one of the leading trade events of the year and one of the world's centres for international trade exchange. As a sequence to the live international interest on the part of exhibitors, la Foire de Paris receives the support of buyers from all over the world, who come not only to transact business but to follow the trend of continental affairs.

The business man will find at his disposal a great wealth of material and information illustrating the progress that has been made in every branch of commerce and industry during the past year. Every facility is offered to those contemplating a visit to the Fair—whether as buyers or exhibitors. Specially reduced travelling tickets are available, free entry to the Fair is assured at any time, and the services of an interpreter and a copy of the Catalogue may be obtained free on request.

All that is necessary to entitle the visitor to the above privileges is the official Fair Voucher which is issued free on request to Trade visitors by the London Office of La Foire de Paris, 17, Tothill Street, Westminster, S.W. 1, or by the French Consuls and Commercial Attachés.

East Surrey Co-Partnership Scheme's Progress

Tribute to Mr. G. R. Hunt

A familiar and much respected figure was missed at the Annual Meeting of Co-Partners of the East Surrey Gas Company, held at the Market Hall, Redhill, on Thursday evening, Dec. 3. For the first time since the institution of the scheme, Mr. G. R. Hunt, J.P., for 23 years Chairman of the Co-partnership Committee, was not in his usual place, his retirement as a Director of the Company having followed the acquisition of its financial control by Associated Gas and Water Undertakings, Ltd., which has made rapid strides during the past year. Mr. W. Lees Stenning, J.P., who now fills the position occupied for so many years by Mr. Hunt, paid a warm tribute to his predecessor in the chair. Those present included Messrs. W. H. Bennett (Managing Director), R. H. Mew, J. Urquhart, and A. E. Whitcher (Directors), Horace Long (Hon. Secretary to the Committee and Secretary to the Company), Ernest Scears (Chief Engineer), Arthur Tennant (Sales Manager), and co-partners from Redhill, Reigate, Godstone, Lingfield, Walton-on-the-Hill, Dorking, and Capel.

The Chairman, who was cordially received, said that with the passing of the financial control of the Company to Associated Gas and Water Undertakings, Ltd., two of their Directors, Mr. G. R. Hunt and Mr. Harrie Stacey, had retired. Mr. Hunt was Chairman of the Co-partnership Fund since its formation 23 years ago, and they all owed a debt of gratitude to him for his unfailing services, his geniality, and the deep interest he ever took in the growth and success of this undertaking, and of every individual co-partner. If Mr. Bennett was truly described as the "Father" of the Fund, Mr. Hunt might be honestly named its "Fairy Godfather," for his gifts, whether to individuals or to the children's gatherings, were made in the most sympathetic open-hearted manner. They thanked him for the example he had set, and wished him long enjoyment of his well-earned retirement. They had two new friends of the Undertaking, Mr. Donaldson and Mr. Whitcher, who had spent many years in the Gas Industry, and knew from practical experience all the obligations and difficulties which fell to the lot of such an undertaking as theirs.

During the year under review progress was recorded in every direction. The total of bonus, with interest and savings, during last year exceeded £2,800. Accumulated bonus and interest together amounted to £25,000, while the record of savings showed deposits amounting to more than £10,000. The Chairman concluded by moving that the Committee's report and statement of the Trustees' accounts for the year ended June 30 last be approved and adopted.

Mr. Bennett seconded.

The resolution was carried.

The Chairman announced that Mr. G. E. Tickner (Distribution Section) had been re-elected a member of the Committee, to which, as the result of a ballot, Mr. C. Davis (Dorking) and Mr. G. F. Cook (Works Section) were also elected.

On the motion of Mr. G. Lucas, seconded by Mr. F. Wilkinson, Mr. W. T. Jeal was re-elected Auditor.

The Chairman then presented a certificate for 25 years' service to Mr. A. Baynham (Works Foreman at Dorking).

The presentation by the Chairman of certificates and prizes in connection with the technical classes followed.

Mr. Urquhart proposed, on behalf of the co-partners, a hearty vote of thanks to the Chairman, Committee, Trustees, Officials, and Auditors for their services in connection with the co-partnership scheme during the past year. Mr. Baynham seconded the motion, which was carried with acclamation.

The Chairman suitably replied.

Mr. Long expressed their gratitude to the Directors, also to Mr. Scears and his Committee, for the splendid concert which followed.

THE MAYOR OF ST. MARYLEBONE OPENS

New Gas Light Showrooms

Mr. Therm has now come to reside at No. 76, Oxford Street, W., where he will be at the service of the inhabitants of a vast and busy area embracing parts of the City of Westminster and of the Boroughs of St. Marylebone, Holborn, and St. Pancras.

Grim and unpleasant has been the past of Oxford Street. Once a Roman military road, and called in turn Tyburn Road and Oxford Road, the thoroughfare received its present name in 1678 by decree of King Charles II., when a contemporary historian recorded that it was " the lurking-place of cut-throats." Another gruesome thought is that along Oxford Street victims went to their doom at Tyburn Tree. For the brighter side of the picture we have to turn to Macaulay, who mentions a time when " one was sometimes so fortunate as to shoot at a woodcock " in Oxford Street and what is now New Bond Street.

But time will alter the reputation, although never the character, of even a Roman road. Straight and full of purpose Oxford Street remains to-day, but cut-throats no longer hold us up. Traffic lights do their work in an equally effective way. The great difference, however, between to-day and the dim and distant past in Oxford Street, so far as we are concerned, is the change wrought by the advent of " one of the greatest services to mankind "—gas. To-day 99% of the buildings lining Oxford Street use gas.

It was His Worship the Mayor of St. Marylebone, Councillor R. Stiles Allen, J.P., who used the phrase " one of the greatest services to mankind " when referring to the Gas Industry at the opening of the new showrooms of the Gas Light and Coke Company at 76, Oxford Street, W., on Wednesday, Dec. 9. The Mayor performed the ceremony in the presence of a distinguished gathering which included the Mayoress, Sir David Milne-Watson, LL.D., D.L., Governor, and other Senior Officials of the Gas Light and Coke Company.

The new showrooms are to serve a large area, which includes parts of the City of Westminster and of the Boroughs of St. Marylebone, Holborn, and St. Pancras. In the area 40,000 meters will be passing gas, which means that it will provide for a population as great as that of Edinburgh; gas will be used in cosmopolitan Soho, large stores, cinemas, restaurants, shops, offices, private houses and flats, nursing homes, and the doctors' " colony." Tailors, furriers, milliners, handbag manufacturers, and melters of precious metals are among the users of gas in that district. Gas cooks and heats up and down Oxford Street, and we learn that even Elizabeth Arden uses it for the delicate preparation of her beauty requisites.

Pleasing Interior.

The new premises are extremely handsome, having been designed on modern lines, with a pleasing interior decorative scheme. The general lighting on the ground floor is carried out by concealed cornice lights, while six imposing indirect bronze standard lamps stand either side of the broad stairs which communicate with the lower floor. Exterior gas lamps in bronze finish illuminate the facia at night, the Company's name being picked out in illuminated characters.

The comparatively narrow frontage belies a spacious interior, which goes back for a considerable distance. Various appliances are tastefully arranged on either side. At the foot of the stairs communicating with the basement and directly opposite the main entrance is what looks remarkably like a modern cocktail bar, the gay decorative treatment including a considerable amount of bright red. Closer inspection, however, reveals the disappointing fact that only coffee is dispensed here for the benefit of consumers. The equipment is, however, an excellent example of how gas appliances can enhance the modern lines of such a refreshment counter. In the basement there are exhibited many graceful designs in gas fires which are fitted up and " alive," so that the consumer is more readily able to select the fire most suitable for her requirements. Modern switch-operated lighting fittings are also connected up for operation by the customer. Large-scale cooking apparatus is prominently displayed, while a cheerful coke fire shows what a suitable fuel our chief by-product is for the open grate.

After inspecting the premises, the company adjourned to Fleming's Restaurant, where, incidentally, all the cooking is done by gas, to be the guests of the Governor and Directors of the Gas Light and Coke Company at tea. A charming ceremony took place just before tea was taken, when little Miss Joyce Gore presented a bouquet to the Mayoress.

Tea over, Sir DAVID MILNE-WATSON, who was received with applause, said how much he appreciated the presence of the Mayor of St. Marylebone, observing that it was very good of him to have come to open the new showrooms. He also thanked the ladies and gentlemen present for having accepted the invitation to attend. The Gas Light and Coke Company had, during the past few years, opened a large number of showrooms in London and in the suburbs, and at long last they had come to Oxford Street. The reason for this move into Oxford Street was that of late Londoners had become rather lazy, and if Londoners would not come to them, then they had to go to the Londoners. The Borough of St. Marylebone was very important, and its historical associations were very many. The Borough's population was equal to that of Sir David's native City, Edinburgh. He thought that the inhabitants of Edinburgh would have been shocked had there been no gas showrooms in that City. There was no need for him to tell them what an historic thoroughfare Oxford Street was beyond, perhaps, mentioning that it was a way of grim and unpleasant memories. To-day it was one of the busiest thoroughfares in the country, no less than forty thousand vehicles passing along it every day. In the area served by the new showrooms there were represented many professions. There was Harley Street with its congregation of doctors, surgeons, and dentists; Bloomsbury with its intellectual and other associations; and, in addition, there were the two great thoroughfares, Regent Street and Oxford Street itself. Famous buildings in the area included London University, the British Museum, and Broadcasting House. It was indeed one of the most important centres of population. There were present both old and young, and he presumed that most of them could remember the old black cooker and the old black fire. Both of these appliances were built like battleships and would stand any amount of rough handling and throwing about, should anyone be so inclined to do while in a bad temper. But in these milder days they had introduced enamelled cookers and fires in various colours because the present generation was not so inclined to throw things about! Referring to gas refrigeration, Sir David said that now they were performing the miracle of producing cold from heat. Then with the instantaneous gas water heater, the consumer was assured of a liberal supply of hot water at any time of the day or night.

The showrooms were there for the use of the inhabitants of St. Marylebone, and if they did not avail themselves of the opportunity to visit the premises, then it was their own fault. Sir David thought the building a great tribute to the Architect, Mr. Michael Tapper.

The Gas Light and Coke Company had been referred to as " London's Public Servant—Number One." During the long period that had elapsed since 1812, when the Company started its operations, down through the long years when the Company had witnessed the growth of all modern developments, it had never let London down. He was not going to compare that with the record of any other industry! He would say no more on that subject because the Mayor was going to follow him, but he would add that there was room for both gas and electricity, and it was the public who reaped the benefits of the competition that existed between them.

Sir David concluded by saying that it was a great pleasure to

welcome the Mayor, and he asked him formally to declare the showrooms open.

A New Cog in a Great Machine.

Rising amid applause, HIS WORSHIP THE MAYOR at the outset said that he would like to thank Miss Gore for her charming bouquet on behalf of the Mayoress.

From a book in the Public Library he had learnt that three great inventions had launched man on the conquest of the world —namely, the use of speech, the use of tools, and the use of fire. Science was improving, and could improve still further, almost anything we used. The most startling inventions employed forms of which our grandparents had hardly dreamt, and many of the most precious inventions of the Twentieth Century were not so much new forms as improvements in the old forms. Better ways of making steel and concrete, ships and roads, and, perhaps, most wonderful progress had been made in the production and distribution of the oldest and most necessary—namely, light and heat. Heat, like transport, was a national service. The Gas Company, like the Water Company, provided a public service that was a necessity, not only in almost every individual home, but to an increasing number of great industries which depend upon an efficient and economical manufacture of gas. The progress of this Company—the greatest Gas Company in this country and, he believed, in the world—was therefore of interest to them all, and its progress had been both steady and rapid. The Gas Light and Coke Company had been active for 123 years. Its history was, therefore, an important part of their great industrial age. When the Company began it had to contend with the prejudice against anything new. Gas had always been, and still was, something of a pioneer. Indeed, the Company had started early in the fight, and when Parliament in the reign of George the Third had hesitated to permit this new form of lighting, the Company had turned to the King with a petition. Finally, the King and Parliament had divided the responsibility for this momentous step. The brilliance of the new illumination seemed a miracle, but, in spite of all alarms, London became brighter. When the first gasholder was erected in Westminster, the Directors of the Company were compared to Guy Fawkes. A body of Members of Parliament with numbers of scientists went to see whether the presence of such large quantities of gas near the Houses of Parliament did not constitute a danger to the Lords and Commons. Some of them might say that such a step was somewhat fatuous as occasionally there was much more gas inside the House than outside.

"Ladies and Gentlemen," His Worship concluded, "those days are long past, and to-day gas is one of the greatest services to mankind. The Gas Light and Coke Company serves an area of over 540 square miles and employs 25,000 men and women. These new premises are a new cog in this great machine, and it gives me the greatest possible pleasure to wish the Gas Light and Coke Company continued success, and to declare these new showrooms open."

The B.C.G.A. Window Dressing Competition

List of Awards

There were about eighty entries for the B.C.G.A. Window Dressing Competition which was open to all members. Photographs of the displays were judged by Mr. Richard Burbidge (Managing Director of Harrods), Mr. D. St. Julian Brown (Vice-Chairman of the National Display Association), and Sir Francis Goodenough, C.B.E.

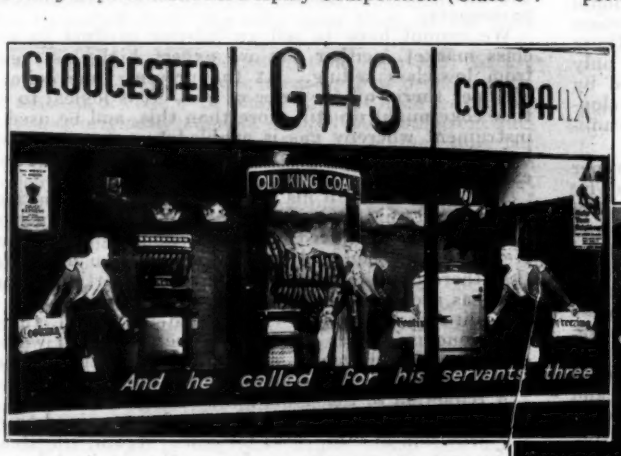
GAS HEATING PUTS COMFORT AND HEALTH IN THE FOREGROUND OF MODERN LIFE
THERE IS NO BACKGROUND OF DIRT AND DUST WITH GAS HEATING
3/6

First Prize: £25 in cash and the B.C.G.A. Silver Challenge Cup
THE CITY OF LEICESTER GAS DEPARTMENT

The accompanying photographs show the first, second, and third prizewinners, whose displays reflect the greatest credit upon those responsible and, we are sure, characterize the progressive spirit which prevails to-day in this most important sphere of the Gas Industry's activities.

It may be mentioned that all the displays were also entered in the *Daily Express* National Display Competition (Class C : "Things to Use")—and in this Competition consolation prizes of £2 each were awarded to the British Gas Light Company (Hull) and to the Southampton Gas Light and Coke Company, while, in addition, two entries by the Parkinson Stove Company, Ltd., secured consolation prizes.

The ten consolation prizes of £5 each in the B.C.G.A. Competition went to the following Gas Undertakings: City of Birmingham Gas Department; Bournemouth Gas and Water Company; Godalming Gas and Coke Company; Harrogate Gas Company; British Gas Light Company (Hull); City of Nottingham Gas Department; Plymouth and Stonehouse Gas Light and Coke Company; Portsmouth Gas Company; Southampton Gas Light and Coke Company; and the East Surrey Gas Company.



Above—Second Prize: £15 in cash
GLOUCESTER GAS LIGHT COMPANY

Right—Third Prize: £10 in cash
GREENOCK CORPORATION GAS DEPARTMENT

The Rational Production and Utilization of Gas Coke

by
W. L. BOON,
General Manager of the London and Counties Coke Association.

From a Paper read before the London and Southern District Junior Gas Association at a meeting held on Nov. 20—the PRESIDENT (Mr. R. Summerson, of Luton) in the Chair.

The view is held in many quarters that we should cease to call our better products "coke," and that they are deserving of a new title to remove them from association in the public mind with the cokes which they have known in the past as such indifferent fuels. In fact, there are already many proprietary names and brands for high-temperature cokes which are popular with the public and command a higher price than could have been obtained if they had not been re-christened.

The prejudice which the public have against coke is undoubtedly an obstacle to our sales even at this present day, and while it is obvious that this prejudice is being overcome, it is still strong enough to cause difficulty, and undoubtedly operates against a better price level in certain domestic markets.

It is claimed that the public easily forget. They do not seem to have done so in the case of coke; and I feel that it is because we do not allow them to do so. We do not yet achieve a sufficient uniformity of coke production to prevent an occasional reminder to the consumer as to how bad coke can be.

The consumer and the type of appliance which he uses for coke burning demand uniformity between one delivery and another in a greater degree than ever before. While I recognize the difficulties underlying this requirement, I must emphasize its importance. There is no other consideration quite so important in coke selling to the domestic market. It is the domestic market we are catering for in an ever-increasing degree, so that "uniformity" should be written in large red letters in our works; red letters because lack of uniformity spells danger.

Coke Production.

The Gas Industry has in recent years paid a much greater regard to the effective disposal of its residuals than has perhaps been the case in any earlier periods of its history. It is beginning to take the view that it does not exist purely for the purpose of gas making, but that its scope lies in a wider sphere for the purpose of turning coal into products of more use and value to mankind than is contained in the original raw material.

This view in the Industry is by no means as strong as it ought to be, and the relative importance which should be attached to the effective disposal of the coke production of the Industry is all too slowly being recognized. There is an insistent and increasing demand for coke, not only consequent upon the demand which has been created by the Industry itself, but by the natural trend of development towards better conditions, labour saving, and cleanliness in the home, as well as smoke abatement.

It is true to say that the possibility of selling a proper quality coke into the domestic field is only limited by the supply. The use of solid fuel in the home in one form or another is firmly rooted in the British character, and it will be a long time before this is changed. The trend towards better conditions is marked by the adoption and use of cleaner solid fuels and is consistent with the public view towards healthier and cleaner domestic environment.

We might regard the coke period as a phase in the movement towards the increased use of gas, and indeed we should use it as a stepping stone in that direction. It would in my view be a serious mistake to neglect that step, and if the Gas Industry does not take advantage of the opportunity which is presented, of more adequately exploiting its coke production, it will be failing in its duty.

There are those in the Industry who firmly hold the view that it is a waste of time and money to develop our interests on the production or disposal of coke, and that our development should be entirely towards complete gasification. This view is a dangerous one if practically observed, for while complete gasification is probably a natural development which can be logically expected, a considerable period of time surely must elapse before there can be any material advance in this direction.

The Industry has been and is still so firmly gas-minded that in spite of the efforts to bring residuals into the right perspective, the talk of complete gasification may serve as a sufficient excuse to cause a reversal to the complacent view that gas is the be-all and end-all of the Industry. I view with some apprehension any reduction of effort and interest in coke and its progressive development. The door of development which was opening for the improvement of our coke product, both productive and selling, may easily be closed if the realities of the situation are not faced.

As one familiar with the hold which the use of solid fuel has in the markets in this country, I feel confident that there are many decades of coke production ahead before the question of complete gasification can enter seriously into the picture. It would be a retrograde step if the Industry neglected the opportunity which is presently before it of exploiting more actively its coke development consequent upon the possibilities which might lie in complete gasification.

Further, it is a matter which does not seem to lie entirely within the scope of the Gas Industry to decide. It is a matter which concerns very intimately other of our basic industries. Let us look ahead by all means, but not at the cost of neglecting the situation which is immediately before us.

Aiming for Higher Markets.

It might well be asked why any efforts are necessary to improve quality in coke, or even to produce more coke, because the Industry can easily sell its present make. The answer is that we are not satisfied to sell our coke at whatever price can be obtained for it. We are aiming to sell more of our fuel in a more effective way and into higher class markets, so that the commodity has to be made suitable for these markets, from which we are already obtaining, and can expect still further to obtain, an increase of revenue to the Industry by so doing. It is not possible to remain static, we have either to advance our product so that it is of proper service to the community and maintain it so that the consumer is always satisfied that it is the best for his purpose, or else we drop back and become passengers.

We cannot hope to sell an inferior product in a high-class market, neither can we expect high-class revenues from low-class selling. At the present time coke takes 2½d. per therm off the price of gas. It is logical to expect that coke might do still more than this, and be used as an instrument whereby gas is enabled to enter into fields of industrial application from which its price may otherwise exclude it.

Your President, in his Address to your Association, has pointed out that certain increases in coke production are feasible from the existing plant employed at gas-works. He has established and shown from his own investigations that there is no technical reason why a partial heating by coal gas should not be undertaken in retort settings which are suitably adapted or constructed for it. If, therefore, the economic values of coke production would warrant a change of this character, a substantially increased quantity of coke might be made available for sale by this means.

A reduction to the minimum in the make of water gas is a further fruitful source which may be examined to enable the provision of more coke for sale. Again, the steam requirements on a works are frequently obtained from marketable cokes, and some scrutiny into the costs of steam so produced may be of advantage in showing the possibilities of lower steam costs, and at the same time freeing additional coke for sale. The claim "that the Industry is its own best customer" is out of date under present conditions of trading, and if it continues to consume such a large proportion of its own make of coke, I would be justi-

fied to change the phrase and say that "the Industry is its own *worst* customer."

It will be seen from the following table of coke production for the last five years that the quantity of coke made for sale by the Industry is a relatively stable figure which has sufficed for the past years of development, but will not suffice hereafter, if we are to take proper advantage of the opportunities which lie ahead. It will be noted that an increase of coke for sale took place in 1935; this took place almost entirely within the area of the London and Counties Coke Association, and gives some indication of what may be accomplished if a co-ordinated selling policy for coke could be established throughout the Industry.

TABLE 1.

Year.	Total Coke and Breeze Produced by Gas-Works.	Gas Coke Exported.	Coke and Breeze Used on Works.	Total Gas Coke Available for Sale.
	Tons.	Tons.	Tons.	Tons.
1931 . . .	12,107,372	992,977	3,423,880	7,690,515
1932 . . .	11,800,826	878,621	3,491 881	7,430,324
1933 . . .	11,472,940	815,710	3,041,743	7,615,487
1934 . . .	11,848,654	826,618	3,413,845	7,608,191
1935 . . .	11,988,754	878,954	3,067,330	8,042,470

It will be asked what kind of coke do we need, and what quantity can we visualize as being necessary.

The kind of coke which will be needed will be a high-quality product suitable for domestic uses and particularly for the open fire. The quantity which we might visualize as lying ahead is the displacement of the use of raw coal in open fires. The consumption of raw coal in this market is between 35 and 40 million tons per annum at this present date.

It would not seem feasible that the Gas Industry as now constituted could ever hope to supply coke approaching these quantities, but it is feasible that the carbonizing industries together might ultimately approach this demand.

The Coke Oven Industry.

I think it is evident that there will be a strong development towards the domestic markets by the coke oven industry.

The production of coke in increased quantities can be looked for from the coke oven industry which can supply adequate and suitable coke for all purposes for which the Gas Industry now supplies it.

There are several obvious reasons which point towards a greatly increased supply of fuel being available from the coke ovens as time goes on. The developments in the coal industry and the necessity for breaking down more and more large coal to smalls are creating large quantities of additional slacks, a portion of which the colliery owner will put into the coke oven to up-grade its value.

The normal purpose of the by-product coke oven industry has been in the past to supply coke essentially for the blast furnace. Conditions, however, are changing so radically that we can no longer take this view as applying to any future development. There is a distinct movement by iron masters to install their own coke oven plant at the steel works, whereby they are enabled to provide their own supplies of coke, and at the same time effectively to use the gas products from the coke ovens in their process work.

The amount of coke oven plant which is installed in this country was originally capable of producing sufficient furnace coke for a pig iron output of 10 million tons per annum; but over a period of years the pig iron production has fallen to proportions so much below this figure that a considerable amount of coke oven plant has been allowed to fall into disrepair. Notwithstanding this, a surplus of furnace coke has been available for several years, some of which has been sold competitively in our markets.

Further, the advance which has been made in the technique of coke oven coke production has shown the way to the manufacture of fuels which are suitable for domestic purposes to a degree which was not originally thought possible in the by-product oven. The way is open, therefore, for the colliery coke oven owner to produce adequate domestic cokes whenever it may seem expedient for him to do so.

The improvement in the steel trade which has taken place during 1935-6 has again necessitated a large increase of pig iron production, and coke ovens have been working at full pressure to supply the coke demand for this purpose. They have not been able to fulfil the demand without reducing the surplus coke which has been hitherto sold in general markets.

The following table shows the relative coke and pig iron production during the past five years, and the surplus of coke which has been available for general purpose sale.

TABLE 2.

Year	Total Furnace Coke Produced for Sale, Excluding Breeze.	Coke Used for Pig Iron Production.	Pig Iron Produced.	Furnace Coke Exported.	Surplus Furnace Coke Available for General Sale.
	Tons.	Tons.	Tons.	Tons.	Tons.
1931 .	8,470,709	4 608 800	3,772,600	1,421,000	2,440,909
1932 .	8,480,196	4,282,800	3,574,000	1,367,000	2,830,396
1933 .	8,778,643	4,758,500	4,136,000	1,481,729	2,538,414
1934 .	11,512,338	6,779,500	5 969,100	1,379,403	3,353 375
1935 .	11,939,453	7,099,200	6,424,100	1,584,613	3,225,640

It is estimated that 45% of the total surplus has been absorbed in the domestic and quasi-domestic markets in the London and Home Counties area.

The installation of new coke oven plant which is in the process of construction at the present time is of such magnitude as to require a clear understanding of the development which is likely to take place and the markets into which the production is likely to be exploited.

It is evident that the capacity of coke oven plant is growing continuously out of balance from the point of view of the likely demand for pig iron. In other words, the necessity for the collieries to make a profit on their slack coals is apparent, because the quantity of fines which are being produced at the collieries is increasing. Consequently, coke oven development is now being undertaken not with the primary object that the production shall be made for the blast furnace, but with the aim that it shall be provided for the domestic markets.

The shortage of coke which may become acute if we experience a hard winter concerns both gas coke and furnace coke, but it will only be of a temporary character. In fact, all evidence points in the direction that there will be a considerable surplus of furnace coke before the winter of 1937 over and above that which was normally provided and sold in our markets; and it is probable that the total production of coke from the coke oven industry will steadily increase as time goes on, whereas the make of gas coke, unless conditions are changed, will remain at a stable figure.

The following table gives a comparison of furnace coke and gas coke production during the last five years, and on the basis of new coke oven plant which is known to be in project at the present juncture, I have been bold enough to forecast what the figures might be during the succeeding two years, my purpose underlying this comparison being simply to illustrate the trend which is taking place.

TABLE 3.

Year	Total Furnace Coke Production.	Total Gas Coke Production.	Surplus Furnace Coke for General Sale.	Total Gas Coke Sold.	Total Coke (Gas and Furnace) Sold in Domestic Home Markets.
	Tons.	Tons.	Tons.	Tons.	Tons.
1931 .	8,470.709	12,107,372	2,440,909	7,690,515	10,131,424
1932 .	8,480,196	11,800,826	2,830,396	7 430,324	10,260,720
1933 .	8,778,643	11.472.940	2,538.414	7,615,487	10,153.901
1934 .	11,512,338	11,848,654	3.353.375	7,608,191	10,961,566
1935 .	11,939.453	11 988,754	3,225,640	8,042,470	11,268,110
	Estimated for succeeding two years.				
1936 .	12,500,000	12,000,000	1,800,000	8,250.000	10 050,000
1937 .	14,000,000	12,200,000	3,400,000	8.500,000	11,900,000

The drop in total coke for sale will be noted in 1936, which is consequent upon the pig iron demand, and the increased furnace coke production in 1937 which can be expected to advance still further in 1938 notwithstanding that the pig iron demand may remain stationary.

There is room for all this furnace coke, and its production need not cause us any great concern, unless our efforts to increase production and improve quality are slackened. Further, the marketing conditions need not be put out of balance if there is reasonable preparation and co-ordination between the two industries.

Alliance with the Coke Oven Industry.

It is a logical thing to anticipate that there will be some future alliance between the Gas Industry and the coke oven industry, not only from the aspect of marketing its coke, but presumably from the wider view of absorbing the gas produced at coke ovens. On the coke side there is every opportunity for a reciprocal alliance which would not only be effective from the point of view of stability

in sales, but from the aspect of building up new markets and allocating in a wider degree the proper fuel for these markets, whether it be produced by the Gas Industry or by the coke ovens.

The distribution of coke co-ordinated in this way would not only be beneficial to the producers, but equally so to the consumer. Economic necessity is dictating a co-operative policy in most of our large industries, and collective action in the coke industry would seem a sensible move towards the common good.

Relative Rates of Increase in Consumption of Coke.

There has been no material increase in the consumption of gas coke in the London and Home Counties during the past five years, but the relation and character of the consumption has changed in several important particulars.

The following table shows the change which has taken place between the industrial and domestic consumption.

TABLE 4.

Year.	Coke Sold for Industrial Purposes.	Coke Sold for Domestic and Quasi-Domestic Purposes.
	%	%
1931	55·36	44·64
1932	44·9	55·1
1933	43·45	56·55
1934	40·75	59·25
1935	35·41	64·59

It will be seen that during this period the domestic consumption has increased by 20%, and in effect it can be taken that if the coke had been available this percentage would have represented a definite increase, because the transfer of coke from one market to another does not necessarily mean that the original market could not have been retained. What has occurred is that coke which was originally supplied for industrial purposes has been, and is being, continuously transferred to the more lucrative domestic market, because coke has not been available to maintain the whole of the industrial trade which was originally held, and could, in fact, again be obtained if the necessity arose.

The seasonal demand of the domestic trade has, however, always presented a problem, and it is necessary that a balance of stocks should be maintained, and the only means of doing this is by having a sufficiency of demand throughout the complete year to prevent an embarrassing accumulation of stock in the summer months for which space may not be available.

The uncertainty of weather conditions is a matter for which provision will always have to be made, and it would appear that a balance of industrial trade will have to be maintained solely for this purpose. This does not, however, alter the fact that an increased sale of coke could be effected, not only in the domestic, but also in the industrial markets.

It is interesting in this respect to consider what has been done in the United States of America with regard to their sale of coke. In that country they have established coke as a successful domestic fuel, and the sales have increased by 4 million tons in four years—an increase which is all the more remarkable when it is realized that it has been achieved in the face of a pronounced trend to automatic heating with oil, gas, and electricity, all of which commodities are more competitive to coke than they are in this country.

A further and more interesting fact is that domestic coke has been established as a quality fuel and now realizes a higher price than good quality coals and anthracite.

In this country, unfortunately, coke has given us a bad legacy, due to its being sold for so many years without any regard to quality; and people have been in the habit of regarding this fuel as a waste commodity which gave indifferent results. To establish it as a fuel having properties very much more beneficial than those contained in coal is more difficult, as a consequence of its past history.

Properties Desirable in Coke.

The nature of the appliance and its operation in the home requires that the fuel which is to be used shall have properties which are of the greatest aggregate benefit to the consumer. It would be of little use providing a coke for an appliance which would give a high efficiency but which might otherwise be unsuitable. The householder will look for a fuel having:

Long-lasting properties.
Freedom from trouble and attention.
Continuity and reliability in service.
Cleanliness in operation and handling.
Economy in cost of operation.

So that while it would be simple to choose a coke which could fulfil one or two of these claims, it is not easy to fulfil them all without some compromise. In the case of the domestic hot water boiler the most important feature for satisfactory operation is that of flexibility or the ease with which an appliance will function from the minimum to the maximum, giving at the same time a reasonable period of time of operation without attention. This is variously determined by:

(*a*) Bulk density—controlling the weight of fuel which can be charged.
(*b*) Minimum possible rate of combustion—dependent on, *inter alia*, the volatile therm content.
(*c*) Size of coke used—dependent upon grading and limits of size permitted.
(*d*) Ash content—fouling of fire and clinker formation.

The effects of these various properties are in some measure conflicting, and if provision is made specifically to alleviate one condition, a difficulty is set up in another direction. For example, if the size of the coke used in the small domestic boiler were increased, then the rate of burning would be augmented without the same trouble from clinker formation, as would occur in a smaller sizing of fuel or at a lower rated output from the boiler.

From the aspect of flexibility the larger coke would not be so effective, so that if we have determined that the greatest asset in a domestic boiler is that of flexibility, then our primary purpose is to supply a fuel to give the best results in that direction.

A considerable amount of important work on the factors which so influence the operation of the domestic boiler was undertaken in 1934 by the South Metropolitan Gas Company and was published under the title "The Solid Products of the Carbonization of Coal."

The Domestic Boiler and Its Efficiency.

Considerable propaganda is brought to bear on users of domestic boilers to adopt alternative fuels to gas coke, and claims are invariably made that these fuels will give a higher operating efficiency; also, greater flexibility is promised with lower operating costs.

It is seldom, however, that such claims are substantiated, and, if they are, the householder usually has had to pay for them in excess of what coke would have cost him. Suitably sized coke nuts as normally supplied in London for the domestic boiler trade cannot be beaten as the best all-round fuel for hot water production in this type of appliance.

The following is a series of tests taken on a domestic boiler with coke and alternative fuels:

TABLE 5.

—	Tests on Small Domestic Boilers—Proximate Analysis of Fuels.			Rate of Fuel Combustion. Lb. per Hr	Efficiency. %
	Moisture. %	Volatile Matter. Therms per Ton.	Ash. %		
High-temperature coke . .	3·7	2·2	9·30	1·2	71
				1·77	68
				3·39	60
				4·27	57
Low-temperature coke. . .	3·1	13·76	3·1	1·72	61
				2·14	57
				2·19	56
				4·29	53
				4·56	51
Semi-anthracite Scottish coal	0·4	11·71	6·55	1·61	53
				1·94	56
				4·08	54

From this it will be seen that coke is more efficient than the fuels having higher volatile content, which is to be expected, as the longer flame from the higher volatile fuels would give an increased flue exit temperature of the gases.

In the operation of the domestic boiler, it is frequently found that the householder operates the appliance in a very spasmodic way, and during periods of the day the boiler is forced beyond its rated capacity. Under these forcing conditions the efficiency will be affected, and, further, the formation of clinker will be increased, so that the appliance will need a corresponding increase in attention when such forcing periods are resorted to.

Assessing in summary the broad requirements in coke

for the domestic boiler trade, they would fall in the following sequence of importance:

(1) Size. Within the limits of ½ in.-1¼. in. (The smaller the boiler the greater the need for an increased proportion on the lower limits.)
(2) A volatile therm content of not less than 2½ per ton.
(3) Ash and moisture combined not to exceed 15%. (Ash should be free from shale.)

This is not a severe specification, and coke conforming to these requirements is being continuously produced in the ordinary course of gas manufacture.

The importance of the domestic boiler trade to the Industry is considerable, as is evidenced by the annual increment of units installed, not fewer than 155,000 boilers being fitted during 1935 within the area of the Association, each one a potential coke consumer of between 1½ and 3 tons per annum.

The small domestic coke-fired boiler is the cheapest system of hot water production, and is very popular notwithstanding the disadvantage it may have of making the room wherein it is situated uncomfortably warm during the summer months. In this very fact lies an excellent opportunity for the application of gas-heated circulators to be fitted in the circuit so that the boiler may be dispensed with during the summer season and the load conveniently taken by gas.

Such a combination is already being installed by several gas undertakings, but there is considerable room for its extension. I feel sure that the gas load for summer water heating can be built up to important dimensions in this way, and on the coke side our salesmen are advocating gas and coke combinations of this type.

Open Coke Fires.

The popularity of the open coke fire hardly needs emphasizing. The increased numbers which are being installed each year adequately testify that the public are ready to use coke in this way. The Industry also seems satisfied that the installation of coke fires is not damaging gas sales, but is rather tending to increase them.

The possibilities of increasing coke sales for use in the open fire are only limited by the amount of suitable fuel which can be supplied for this purpose. Opinions in the Industry are, however, divided as to what our policy should be—whether we should produce a coke suitable for use in any fireplace where coal is used, or whether to continue producing a fuel which requires a special appliance in which to burn it. The view is also expressed that it is a confession of weakness that our cokes require gas ignition to start them burning as opposed to the old method of lighting a coal fire with sticks and paper. I certainly do not agree with this view, as, apart from other considerations, the use of gas ignition for any solid fuel is a convenient and labour saving medium, and the modern housewife is assiduously searching for any and all means of reducing household labour.

The use of gas ignition for the open fire, whatever the fuel it uses, should be encouraged, and it would seem advisable to provide all solid fuel grates with a permanent gas ignition device notwithstanding that the fuel used may be readily ignited by other means.

Concerning the policy of coke development in relation to the open fire market, I think that we should all agree that an ideal had been achieved if the Industry could supply an all-purpose fuel suitable for use in any grate, without, however, foregoing any of the economic advantages obtained by our present-day methods of gas manufacture.

I am not aware that there is yet any method whereby all-purpose coke can be produced without foregoing some of the advantages which we at present obtain in the production of high-temperature cokes. I look forward to the time when we can produce such a commodity for universal sales, and it is right that we should work to that end. Several methods have been developed of activating high-temperature coke outside the retort, such as spraying with coal dust and creosote mixtures or with oil—all with the one object in view, of easy ignition. A reactive skin may serve this purpose, but it is not necessary once the fire is burning. If we acknowledge that gas ignition is serviceable to the community, then the Industry would rather have gas ignition than spend money on trying to avoid it by activating its coke. Where gas is not available, the process would serve to help the case of coke for open fire use, but they would relatively be so few as to render the process unnecessary in all but agricultural areas. An interesting process having the same objective is, however, being developed by the Imperial Chemical Industries at the present time, which seems to be more logical inasmuch as it takes place through the normal process of carbonization by the addition of an alkali, ground limestone, and sodium carbonate to the coal charge. Coke already produced in this way has been tested and gave the following results:

—	Activated Coke.	Coke (not Activated) from the same Coal.
Gas used for ignition	4 cu.ft.	12 cu.ft.
C.A.B. test	0·038	0·058
Size	¾ in. by 2 in.	,,

I understand that this coke, made from Yorkshire coal and otherwise carbonized in the ordinary way, gives a bright and pleasing fire with more flexibility than is possessed by the same coke not so treated. Experiments are being continued to ascertain what effect the process may have on the linings of the retort.

In the meantime, we are concerning ourselves with realities and dealing with the open coke fire trade in the best way present day conditions will allow. It is true that we require to sell the open fire as an appliance before we can sell our fuel. But the same is true on the gas side of our Industry, and they do not seem to have suffered from the handicap. It is the same with the coke fire, and if any handicap has existed it has been due in greater measure to the suspicion that the coke fire is hurting gas and the lethargy in coke selling within the Industry, rather than any other cause. Something of the order of 100,000 coke fires are now being installed each year within the area of the London and Counties Coke Association. Our Advertising Committee recently gave the opinion that we could sell 100 times this quantity if a drive parallel to the refrigerator campaign were undertaken.

We are not, however, in a position to supply a potential demand of this magnitude; we do not produce that quantity of good quality fuel. We can, however, increase our present speed in the development of this market if we can be assured of getting more coke of good quality. It is essentially a good quality market and correspondingly the most lucrative one to the Industry.

Requirements in Coke for the Open Fire.

As in the case of the domestic boiler, the problem must be viewed from the general utilitarian standpoint. We obviously cannot get all we want in our coke, but we know what we can get, and we must limit our requirements to a corresponding standard framed upon the following considerations:

(1) Uniformity—between one delivery and another.
(2) Flexibility—the ability of the fire to burn low and resuscitate (not less than 2½ volatile therms per ton).
(3) Lasting properties—the ability of the fire to last without too frequent replenishing (3 hours on a 14 in. grate).
(4) Ignitability—to sustain ignition on a consumption of not more than 12 cu.ft. of 500 B.Th.U. gas.
(5) Operation—the general appearance of the fire when burning shall be pleasing. The coke must not be noisy in burning (due to shock quenching), and the ash must shed easily and be shale free.
(6) Storage—the coke should be strong enough to stand handling without breakage in consumers' bins. It should contain sufficient moisture to obviate a dust nuisance when handling (minimum 3%, maximum 6%).
(7) Economical in cost—efficient in operation at no greater cost for effective room warming than household coal.

National Specification.

While I am persuaded of the impracticability of any national specifications for cokes having relation to their performance, I am convinced that the Industry could go a long way to help itself in this direction by a general adoption in the first place of the standard sizes and nomenclature for cokes which have proved adequate for all purposes of trading in the London area. These are:

No. 1. Large or Unbroken. Over 2 in.
No. 2. Broken. Within the limits of 1 in. to 2 in.
No. 3. Coke Boiler Nuts. Within the limits of ½ in. to 1¼ in.

No. 4. Forge Beans. Within the limits of ⅜ in. to ¾ in.

There would seem to be no reason why odd sizings and designations which occur variously in almost every district should be maintained. The appliances and purposes for which we use our coke are the same, and if the standard sizings used in the south have been found adequate, there seems no reason why they should not be adequate in Manchester or in Glasgow.

It would at least be a step in the right direction—and,

incidentally, of considerable value to coke appliance makers who at the present time do not quite know for what to legislate when designing their equipment.

Future Development.

The work which the London and Counties Coke Association has done since its formation in 1931 has emphasized the great utility of the service which could be rendered to the Gas Industry as a whole if similar associations were formed in other parts of the country to deal with their coke markets in a like manner.

Outside of the Association in London and two other areas there has been no move by the Gas Industry as a whole to formulate their coke policy on any co-ordinated lines. Unfortunately, the whole interest of the Industry has been so centred upon gas that it does not seem to have had time to view the coke position in its proper light, or to take due regard of the potential revenue which lies in the greater development of its coke product.

It is apparent that a great deal of coke in the Gas Industry is even yet merely being disposed of as a by-product, and is not being sold intelligently. It is not being prepared in the way the present-day consumer requires, and, in effect, it is not being sold to suit the appliances or the consumer. Where these conditions are obtaining it is a matter of no surprise that the revenue from its sale is low.

As an instance of the value of co-ordinating effort and quality improvement, I might refer to the year 1934-5, which had the warmest winter season we have experienced for many years. The consequence was that in the London and Home Counties area the demand for fuel for heating and domestic purposes was very much below normal. At the same time, the area was flooded with cheap coal from other parts of the country; there was, in fact, a glut of cheap fuel. Notwithstanding these abnormal conditions, the Association, through its members, not only sold its full complement of coke production at a stable and economic price, but increased its annual turnover during that year by 400,000 tons.

It can be easily understood that, under such conditions and without co-operative selling and control, the whole position of the coke market would have been chaotic, and prices would have slumped to abnormally low levels. In my view, there is urgent necessity that coke associations be formed in other areas of the country, until there are a series of bodies controlling the production of the entire Industry, all working in unison, pooling their information and co-ordinating the work of all areas in one centre.

We have seen from the action which the Government has taken in the Coal Industry that a policy of this character is well founded. It would not seem to be good business or desirable for the Industry to wait until such time as the Government may impose co-operation upon it by statute.

Discussion.

Dr. F. J. Eaton (Gas Light and Coke), after congratulating Mr. Boon on his Paper, observed that the Author had shown that there was a very good market for coke at the present time and that the demand was likely to increase in the immediate future, but he had very rightly warned them not to be too complacent and relax their control over coke quality. There was no reason why, with careful control, the moisture content should be greater than 3% to 5%. Cokes with less than 3% moisture were liable to be dusty, which might lead to complaints. The ash content was dependent upon that in the coal carbonized; but although they had no direct control over this factor, a figure of 9% in graded coke was not likely to be exceeded. The calorific value of such a fuel would be approximately 12,500 B.Th.U./lb. For all coke burning appliances the grade of coke used was most important. Thus with the minimum size domestic hot water boiler of 2 sq.ft. heating surface coke boiler nuts of ½ to 1¼ in. was a satisfactory fuel. With the ⅜ to ¾ in. size clinker troubles would result if the boiler was forced, while with broken coke of 1¼ to 2 in., although the efficiency of the boiler was increased by about 5%, the flexibility was low and the boiler would not stay alight over night. For boilers of over 4 sq.ft. heating surface broken coke was the best fuel. It would be readily understood that on boilers of 3 to 5 sq.ft. heating surface if the boiler was forced frequently broken coke should be used and coke boiler nuts if it was to be kept alight for long periods.

In dealing with coke fires Mr. Boon had stated that the shale content should be kept to a minimum. If the coke was water quenched shale was objectionable, since it tended to fly; but it had been shown by the South Metropolitan Gas Company in "Solid Products of the Carbonization of Coal" that ash volume was an important factor in the radiant heat output of the fire. Provided, therefore, the coke was steam quenched there was some advantage to be gained by having the ash concentrated as shale. The question of control of quality was particularly important in coke for open fires, and they had found that the Beaden and Riley critical air blast test was of very great assistance. A coke having a C.A.B. value of between 0·055 and 0·06 cu.ft. per minute would be found satisfactory in a special grate, provided the coke was of the correct size. Such a coke could be ignited with 12 cu.ft. of gas and a good fire obtained in 40 minutes. In conclusion, Dr. Eaton asked Mr. Boon what was the procedure of the L.C.C.A. should one of their members have a surplus of coke. How did Mr. Boon find a market for it?

Mr. Boon stated that they had 92 hours' grace in which to dispose of stocks of fuel which had become an embarrassment to the holder. They first endeavoured to find a producer who would handle it. Such cases occurred infrequently, however, and only during the earlier years of the Association's work. It did not occur now by reason of the farsighted policy adopted to-day, resulting in better balance between stocks and sales. To-day they were looking two or three years ahead in the development of new markets for coke. They might ask "why develop new markets when they had not sufficient coke for their existing markets?" Mr. Boon instanced the case of grass drying—a market which had actually been developed for furnace coke for the time that product reached the point when it could no longer all be absorbed by the steel industry. If they were to work on a stable market they must carry this policy to the farthest extent.

From the commercial aspect, ash in the open coke fire was an important factor more by reason of its flocculence than of its shale, because the damping effect on the fire due to the adhesion of the ash was very detrimental. This matter was being studied. Those who were taking the long view were to-day purchasing coals not with the primary view of gas-making but with the combined view of gas and coke production.

Reactivity Becoming Lower.

Mr. F. G. Cooper (Gas Light and Coke) observed that he fully appreciated the difficulties of drawing up a rigid specification, but as carbonization practice was tending at the present time the reactivity of the coke produced was becoming lower. That was the prime factor in the attitude of Imperial Chemical Industries in activating coke with an inorganic catalyst. The position in the coal fields was also becoming worse; whereas in the past seams of 1 ft. to 18 in. had been entirely disregarded, to-day the colliery owners were working such seams, which had resulted in the necessity for complicated washing plant. But still the net result was worse than in the days of the thicker seams when they were drawing coal with low ash content. Moreover, the coal derived from a number of these thin seams was being mixed up in the deliveries, and the hope of producing a standard coke from the carbonization of such raw material was almost impossible. It had been mentioned that the rate of combustion was due to the presence of a certain amount of volatile matter; but he suggested that the actual rate of combustion during the later stages was rather due to the reactivity of the coke to carbon monoxide. Mention had also been made of the fact that fuels giving flame length caused the boiler efficiency to drop. Cokes which were activated would give longer flames; so they would tell against the efficiency of the appliances. The process of adding sodium carbonate or lime was tried many years ago and dropped because it lowered the ignition temperature of the ash, causing a greater liability to clinker formation. Mr. Cooper considered it uneconomical to add so much catalyst. Moreover, the crackling of the coke was another factor which told against it.

Mr. Boon said that noisy burning was due in large measure to "shock" quenching; they did not experience noisy burning with dry-quenched coke. The noise was due to the globules of water contained in the coke exploding as a result of the steam generated. He would not contemplate the use of activated coke in domestic boilers. The question of ignition of the open fire was, perhaps, the most important factor, and activation was being undertaken with a view to producing an all-purpose coke; if they could produce a fuel which could be used as "Coalite" was used it would fulfil the requirements of a large market. He was disturbed to think that they should have to face the addition of a catalyst which would have the effect of increasing the ash content. Most washery troubles were due to the fine slurry; the wash water had to be renewed frequently or the coal would suffer in quality. If the wash water could be kept clean or alternatively the coal de-dusted before washing they could continue to expect a reasonably ash-free coal. Not only were they endeavouring to obtain the cleanest possible coal, but they were re-cleaning their coke. It was worth while spending money on this.

Gas Ignition.

Mr. R. N. LeFevre (Gas Light and Coke) observed that among gas utilization personnel there had been a tendency to regard coke sales as detrimental to gas, and in that respect he was particularly gratified to see the reference to gas ignition for coke fires. Practically all coke-burning domestic appliances to-day were provided with some form of gas ignition, and in the open grate the gas burner was a standard part of the equipment—providing an annual consumption of 15 to 20 therms of gas which they would not have obtained without the installation of a coke grate. It was the practice of his Company when fitting open coke fires to provide a flexible connec-

tion so that a portable gas heater could be used when the high efficiency of the coke fire made it undesirable to use this form of heating between seasons On the water heating side the installation of a gas circulator in combination with the coke boiler was, in his opinion, the ideal water heating system for the small houses now being built in such numbers. This was the happy combination of gas and coke.

Mr. BOON observed that the first point mentioned by Mr. LeFevre was a somewhat sore one with the coke side. The coke salesman had been brought up to look upon gas with reverence, while the gas side were apt to regard coke as detrimental to their interests. The Gas Industry had lost money through that attitude; the two fuels were complementary, to be utilized according to the requirements of the consumer. So far as the L.C.C.A. was concerned, their primary viewpoint was "What is the situation here in regard to gas?" The coke side often obtained many good loads for gas, but he had yet to find any good coke markets obtained by the gas side. He agreed that in the gas circulator they had a splendid appliance, which could with confidence be recommended either in combination with a domestic boiler or a fireplace back boiler.

Gas for Heating the Retorts.

Mr. S. H. MILES (Reading) suggested that there was no reason why coal gas should not be used for heating the retort settings, but there was not much information available at the present time on the economic side of this question. Mr. Boon had also mentioned the reduction of water gas production; this was largely being done in the area of the L.C.C.A. Moreover, there was a wide field for scrutiny in regard to the costs of steam production as well as in regard to breeze-burning producers, by which means a large amount of coke could be freed for the market. From his own experience, carbonizing some 63,000 tons per annum, they were some years ago using 10,000 tons of unscreened coke a year for heating the settings; but when breeze-burning producers were installed they immediately freed a large amount of marketable coke by using 50% to 60% of breeze in the producers. He thought, however, that much more could be done by heating the settings with coal gas. As regards ash, Mr. Miles remarked that it was not only a question of the percentage of ash, but the nature of the ash and particularly its fusion point; there should be a minimum figure for this. There was, said Mr. Miles, a lack of co-ordination of information on coal quality; and another difficulty was in regard to coke storage.

Mr. BOON said the question of adequate storage of coke in the home was a difficulty which was facing them all; but here they were at one with the coal interests. The Coal Utilisation Council was working hard on this matter and was approaching local authorities with the object of getting the position alleviated. Architects were also being approached as occasion arose, and the L.C.C.A. were providing drawings for various types of building to indicate how greater storage facilities would be provided in the easiest possible way. The distributive side was under great difficulty by reason of the necessity for small deliveries, which cost more money, so that in effect the poorer consumers were having to pay more for their fuel—which was quite wrong.

Mr. R. J. PEPPER (Gas Light and Coke) remarked that he had come up against many disadvantages in regard to the utilization of coke. Many people found that they could not keep their coke boilers alight overnight; this might be due to inability to adjust the dampers properly, but they found that anthracite stayed in, and they therefore changed over to that fuel. Another disadvantage lay in the deterioration of the brickwork and iron, due to the high temperature at which coke burnt in comparison with coal. It seemed to Mr. Pepper that these disadvantages could to a large extent be overcome. When one studied the production of gas and coke in the ordinary retort house one found undertakings striving to obtain the greatest thermal yield in the gas, and the last hour or two in the carbonizing period was spent in getting those few extra therms from the coal. He had often wondered whether this was really worth while when they were trying to produce a better quality coke. He suggested that it would be better to carbonize the coal for a shorter period with a view to obtaining a higher quality coke. He thought that the I.C.I. method of adding an alkali with a view to making the coke more readily combustible should be deplored because they were making the ash fusible at a lower temperature, which would be detrimental to the use of coke in the boiler, while the presence of an alkali in the ash would tend to crumble away the brickwork in the open fire.

Not Asking for a Gift from the Gas Side.

Mr. BOON said that the question of reducing the thermal yield concerned the balance-sheet of the gas undertaking, and he did not think that they should ask for any reduction. A reduction in the thermal yield would be a retrograde step, and the coke side would not ask for it. They wanted to develop in new directions, and he did not think that the use of activated coke in the boiler was the intention at all; they wanted to allocate their cokes in the proper directions—the denser cokes for boilers and the lighter cokes for the open fires. The Specification for limiting the size of domestic boilers would go a long way to help in this matter, for many boilers to-day were far too small to sustain ignition. Fire bars were now being guaranteed by the makers for a life of three years, and their replacement only cost a few shillings. Moreover, the public had been using coke fires for many years now and were still installing them. The question of better quality brickwork for coke fires was at present under consideration.

Mr. F. C. SMITH (Gas Light and Coke) said he observed that the L.C.C.A. were issuing approved lists of coke burning appliances, somewhat in the same way that the A.G.A. badged gas apparatus in the United States. They had not adopted this procedure for gas appliances in this country for the reason that development was so rapid that approval certificates might become out of date. Mr. Smith enquired if the L.C.C.A. had any machinery for ensuring that as coke burning appliance standards advanced the certificates of approval could be withdrawn or modified or the appliances submitted for further tests.

Mr. BOON replied that so far they had no machinery for the withdrawal of any appliances from the approved lists, but they might be faced with this difficulty later on. He did not anticipate much trouble in this respect, however, because the number of appliances was not so great as they had to deal with on the gas side.

Plea for an All-Purposes Fuel.

Mr. R. W. HILHAM (Colchester) observed that room could not be found for the storage of two fuels, apart from the fact that the consumer did not want to have to buy two fuels. Could not some research be promoted to provide one type of fuel for all domestic coke-burning apparatus? Another point was the appearance of the open coke grate. The modern coal grate was of the low type, and coal grates with bars were now regarded as old-fashioned. But the coke grate was going back to this old type. The present-day consumer had grown to dislike bars, and he wondered whether a barless coke grate could not be designed.

Mr. BOON stated that barless coke fires did exist, but they had to carry a greater fuel bed. He did not see how this difficulty could be overcome until they had a sufficiently reactive coke to use in the ordinary coal grate. He was afraid that the storage problem would be with them for some time to come—indeed, until they could offer one fuel for the boiler and the open fire.

Responding to some observations by another speaker on the subject of coke handling and quenching at small gas-works, Mr. Boon agreed that in some instances this was somewhat crude, and they were pressing generally for improvement in this respect. The principal producers, however, were making excellent coke. They had no means of saying that the smaller undertakings must do this or that; they could only show them by example that it was in their own interests to do so.

Making By-Products More Profitable.

Mr. J. GRAYSTON (Lea Bridge) observed that the crux of the matter lay in the fact that they would not sell more gas until they sold it more cheaply, and the only means of bringing down the manufacturing cost was by making their by-products more profitable. It would pay them, he said, to fire their retorts with coal gas in the future. Coke production was a science in itself, and he did not think that the members of the Association were aware of the work which had been done by the Technical Committee of the L.C.C.A. He thought that some of the findings of that Committee should be made available to the technical staffs of gas undertakings. They were, in fact, circulated, but Mr. Grayston doubted if they ever reached the men operating the plants. Mr. Boon had stated that there had been no material increase in the consumption of coke in the London and Home Counties area during the past five years; but Mr. Grayston suggested that 400,000 tons did not sound a mean increase; it represented a very considerable advance. The only fundamental of policy with which he did not agree was in Mr. Boon's statement that the balance of industrial trade would have to be maintained. It was this trade which was keeping their average price down to-day; the domestic market was the one they had to sell into. The whole matter was bound up in the amount of coke which could be stored during the summer months.

Mr. BOON remarked that if Mr. Grayston could visualize the carrying of tremendous stocks of coke in the London area, where ground was expensive, he could not. Such an aim was, of course, ideal, because it would enable the whole of their make to be sold into the domestic market. The industrial field need not interest them for the moment if they could hold their summer production for the winter. His reference to no material increase in coke consumption was intended to be understood in relation to the *possible* market. Actually, the L.C.C.A. was very pleased with its work, particularly in view of the fact that where chaos might have reigned they were able to maintain their revenue—and not only that, they were able to increase their output. Before the Association came into being producers did not know the price at which they were going to sell their coke. Now they had a stable market; and that was what the co-ordination of production and selling could do.

The PRESIDENT, in winding up the discussion, expressed the hope that the coke which might eventually be expected to displace the use of raw coal would be a product of the Gas Industry so far as possible.

A hearty vote of thanks was accorded to Mr. Boon on the proposition of Mr. LEFEVRE, seconded by Mr. S. C. WALDOCK (Gas Light and Coke), which Mr. BOON briefly acknowledged, observing that the development of the coke market was a matter of National expediency. They would be failing in their duty as a Nation if they did not utilize their raw material to better effect.

Review of the General Meeting of the Union Syndicale de l'Industrie Technique du Gaz en France

Conditions in France in the summer of this year rendered it necessary to postpone the usual Congress of the Union Syndicale de l'Industrie Technique du Gaz en France. At the General Meeting which took place in Paris on Oct. 8, the papers and reports which had been prepared for the 59th Congress were discussed. M. Alfred Bazille, the President of the Union, was re-elected for the ensuing year.

Prizes of 5,000 francs each were awarded to MM. Charlet and Duchemin for the Papers presented by them to the Congress held in 1935, the prize of 3,000 francs being awarded to M. Séranne.

The continued progress of the French Gas Industry is again evidenced by the formidable array of communications open to discussion.

Control of Benzole Recovery Plant

A rapid method for the determination of the benzole content of benzolized gas and of debenzolized gas and wash oil is a desideratum if control of benzole recovery plant is to be carried out under the best conditions. R. Delsol described a method introduced at Gennevilliers and based on the use of photo-electric cells arranged as lux meters.

The illuminating power of gas is a function of its benzole content. Consequently, if the gas is burnt under standard conditions in a suitable burner and the luminous intensity of the flame is measured, the benzole content is readily ascertainable.

The method is based on the division of the gas stream into two circuits, one of which passes directly to a burner while the other passes to a second burner after traversing a carbon filter in which it is freed from benzole. The burners are of the non-luminous type and have orifices of dimensions 2 × 15 mm. The burning rate which has been found most satisfactory is 1¼ cu.ft. per hour. Suitable flow meters and control valves as well as a device to compensate for the pressure drop in the carbon filter are incorporated in the apparatus. In front of each burner is a photo-electric cell of the recently developed semi-conducting pattern. This type of cell embodies a metallic electrode of iron or copper covered with a layer of selenium of high resistance and a second electrode consisting of a translucent pellicule of gold or silver. The two cells are arranged so as to give a differential reading on a micro-ammeter to which they are connected. A potentiometer having a resistance of 200-300 ohms enables the two cells to be balanced one against the other. The micro-ammeter has two scales, one with a range of 50 micro-ampères in 0·5 micro-ampère stages for use with gas of low benzole content, and one with a range of 250 micro-ampères in 2 micro-ampère stages for use with gas rich in benzole. A reading of 30 micro-ampères corresponds, approximately, to a benzole content of 0·2 gallon of benzole per 1,000 cu.ft. of gas at 60° F., 30 in., saturated.

When it is desired to determine the benzole content of debenzolized wash oil, use is made of the fact that when gas free from benzole is allowed to bubble through a wash oil the gas will absorb benzole to an extent depending on the benzole concentration of the wash oil. Thus the luminosity of the flame of the enriched gas will be a function of the benzole content of the wash oil. For this test, a stream of gas is completely freed from benzole by means of a carbon filter and is then divided into two streams, one of which passes to a burner *via* a bubbler containing 500 c.c. of wash oil freed from constituents boiling below 200° C., while the other stream is supplied to a burner after passage through 500 c.c. of the debenzolized gas oil undergoing test. Conditions are such that the debenzolized oil is but slightly denuded of its wash oil content when the gas passes through it at the specified rate of 1¼ cu.ft. per hour for the short time (10 minutes) required for the test. The two wash oil bottles are contained in a water bath the temperature of which is maintained at 25° C.

The above method for benzole determination is particularly valuable when, as at Gennevilliers, a multiplicity of scrubbers working in parallel is employed since it enables any irregularities in the performance of the individual washers to be quickly detected as a result of a rapid series of tests on the gas leaving each scrubber. For this purpose, suitable sampling pipes and valves connect the outlet of each scrubber to the instrument panel. The operation of the wash oil still is controlled by periodical tests on the debenzolized oil.

The Steaming of Intermittent Chambers

An investigation ranking in importance with the papers on intermittent chambers presented in recent years to The Institution of Gas Engineers formed the subject of a communication by A. Bolzinger and L. Faucon.

The work was carried out in connection with an installation of 36 Pintsch-Otto intermittent chambers at Nantes, the object being to establish the best operating conditions. The theoretical basis of the investigation was the concept of the hydrocarbon enrichment value introduced by Pexton. The essential requirements for the production of a high therm yield are that the hydrocarbon enrichment value per ton of coal should be high and that the content of inerts in the gas should be low. The factors studied included (1) the thickness of the breeze pad, (2) the evenness of filling of the chambers as influenced by the design of the charging hopper, (3) the extent to which the chamber is filled, (4) the operating temperature, (5) the stage at which steaming is commenced, (6) the rate of admission of steam, and (7) the pressure conditions.

The thickness of the breeze pad is not a decisive factor. On the other hand, the question of the best design of charging hopper is one which calls for further investigation. For each operating temperature, there is an optimum size of charge, higher temperatures enabling larger charges to be worked. As regards steaming, it may be stated that premature admission of steam causes a loss in hydrocarbon enrichment value since carbonization is thereby arrested. Delayed steaming is favourable to the cracking of the gases produced during the delay period though the effect is relatively unimportant in view of the small volume of gas affected. Finally, the exact moment chosen for the commencement of steaming has an important effect on the inerts content of the gas, the inerts being increased, though for different reasons, if steaming is commenced unduly early or unduly late. In the latter case, the nitrogen content of the gas is increased. In the former case, the water gas is of low calorific value. The point at which steaming may be commenced may be fixed in relation to the ratio of the rate of gas production at a given time to the average rate of gas production in the main period of the carbonization. The ratio in question is ascertainable from the nitrogen content of the gas since, during the final stages of carbonization, the pull remaining constant, the rate of infiltration of waste gas into the chambers will be constant, whereas the rate of gas evolution from the charge is rapidly falling. Steaming may advantageously commence when the rate of gas production has fallen to 10-20% of the average rate. There is an optimum rate of steaming. A slow rate of steaming is conducive to the infiltration of inerts from the combustion flues, while a heavy rate of steaming gives rise to a water-gas rich in carbon dioxide.

The best pressure conditions were found to be a pull of 8-18 hundredths of an inch (W.G.) at the collecting main, since this represents a compromise between undue loss of gas through the chamber walls and undue dilution of the gas through infiltration of flue gases.

Finally, consideration was given to the question of market conditions, which may, in some cases, render mixed firing with producer gas and coal gas profitable in order that the tonnage of coal handled and the yields of disposable by-products may be increased.

(To be continued.)

Windermere Public Lighting

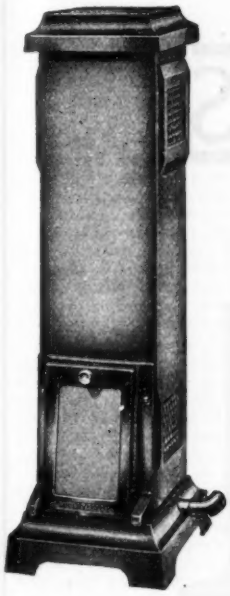
From Electricity to Gas?

We understand that the Windermere Urban Council has under consideration a proposal to convert the whole of the urban street lighting, the greater part of which is now carried out by electricity, to gas. The Council's Highways Committee has recommended the adoption of a quotation by the Gas Manager of £900 per annum for gas lighting and maintenance and £1,100 for the conversion of electric light standards to gas standards. A Sub-Committee has been appointed to go into the matter.

Trade Notes

Modern Gas Fires and Heaters.

A recently issued catalogue by Stoves, Ltd., of Rainhill, Liverpool, deals with a comprehensive range of gas fires and heaters designed to meet the varied requirements of the modern home. A large choice of design, size, and finish has been provided in these appliances to harmonize with different decoration schemes and with many types of fireplace surrounds.



The latest "Silo-Matchless" gas fire is now equipped with an ignition device fitted inside the casing, the turning of a chromium-plated knob being all that is necessary to provide instantaneous lighting. A new type of radiant is also an important innovation in this series. The catalogue portrays this appliance in a number of attractive finishes, printed in actual colours, while the range of pleasing hues in which the "Silo" fire can be supplied is also set out, with full particulars of the various models. Different designs of inset, screen, and portable fires are specified, together with details of the firm's bowl heaters and improved "Ravec," the latter combining the advantages of radiant and convected heat in one appliance.

Particular attention is devoted to the "Supervector" panel heater, examples of which are illustrated on another page of this issue as fitted by the Sheffield Gas Company in the Lodge Moor Mission Church. This heater, which is especially suitable for entrance halls, offices, clubs, restaurants, and other public buildings, can be fitted, it is stated, with or without a flue as desired. By the special construction of the interior, cold air is drawn in through gauze panels, thoroughly heated, and then passed out into the room again, this action assisting ventilation without causing draughts. The burners are of the volumetric type with a rated consumption of 4 cu.ft. per hour per burner, no gas adjuster or governor being necessary. The interior is porcelain enamelled for greater durability, while a polished aluminium reflector is fitted behind the burners, which, in conjunction with the ruby coloured glass door panel, gives a warm and cosy appearance.

The catalogue concludes with particulars of the firm's "Silo-Step" and "Matchless" radiants, and a complete index gives easy reference to the various appliances dealt with.

"Copper in Chemical Plant."

This handsome booklet, which fully maintains the high standard the Copper Development Association, Thames House, Millbank, S.W. 1, have set themselves in the publication of works of interest to copper users, has been prepared to indicate some of the applications of copper in the chemical industry and briefly to review the physical, mechanical, and corrosion resisting properties upon which the use of copper depends. Some of the typical operations involved in the manufacture of copper plants are also described. The work is liberally illustrated and is printed on art paper.

General engineering and other applications of copper and its alloys are dealt with in other publications of the C.D.A. These are listed at the back of this booklet and are available on request.

Hot Water for the Artisan Flat.

The great essential for all rehousing schemes is an adequate and reliable supply of really hot water at all times inasmuch as the health and comfort of the tenants is largely dependent upon that service. Of interest to our Industry is the following extract from the minutes of the London County Council for May 19, 1936: "In the better type of flat (Type 3) a gas copper is provided for washing, and a multi-point gas water heater is also provided to supply hot water to the bath, hand-basin, and sink. In cottages, the arrangement now is for a gas or fuel copper to be installed with a pump to supply the bath, but also a gas point in the bathroom for a gas heater. The provision of, or the means of providing, a heater is considered to be a better arrangement than a boiler at the back of the living room fire, as hot water is obtainable in the summer without the necessity of a fire."

We have received from Messrs. Ewart & Son, Ltd., 346-350, Euston Road, N.W. 1, a recent publication giving some suggestions for water heating in all types of rehousing schemes. Ewart's "Advance" multi-point water heater (a large number of which have been supplied to the London County Council for flats type 3 and 4) will supply sufficient hot water for a 5-ft. bath (about 20 gallons) at a cost of 1d. with gas at 10d. per therm, and at the "turn of the tap" an instant supply of hot water for washing-up purposes.

Over 1,000 miles of STANTON-WILSON MAINS

The fact that in barely six years over 1,000 miles of Stanton-Wilson mains have been laid by about 700 public undertakings proves that the Stanton-Wilson Self-adjusting Pipe Joint has effectively solved the problems raised by ground subsidence and traffic vibration.

The most durable, trouble-free gas and water mains are those of Stanton "New" Spun Iron Pipes coupled with Stanton-Wilson Self-adjusting Joints.

The **STANTON-WILSON** self-adjusting **PIPE JOINT**

The Stanton Ironworks Company Limited, Near Nottingham

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GAS CALORIMETERS

GAUGES

TEST METERS

GRAVITOMETERS

TORCHES

PRESSURE RECORDERS & VACUUM INDICATORS

GAS ANALYSIS APPARATUS

CO_2 RECORDERS

CO RECORDERS

PHOTOMETERS

PRESSURE REGISTERS

GAS TESTING APPARATUS

DIAL and MAIN THERMOMETERS

ENCASED THERMOMETERS

FUEL CALORIMETERS

Simmance Patent

CALORGRAPH

Where a recording calorimeter is required to operate for many years without attention other than to chart-changing, etc., and occasional cleaning, the Calorgraph is the type you will select. It is the simplest recording calorimeter available, and has a high degree of accuracy.

The Calorgraph can be supplied to record in British Thermal Units over practically any range, or to show percentage variation from declared value to conform to Gas Referees' requirements.

ALEXANDER WRIGHT & Co. LTD. WESTMINSTER

Gas Markets and Manufactures

Stock Market Report

(For Stock and Share Lists, see later pages)

The constitutional crisis, the like of which has had no parallel in English history, came to a tragic end on Thursday last, and after more than a week of suspense and bewilderment activity was resumed in nearly all sections of the Stock Exchange. Prices began to recover, and though there were some good features towards the close quotations have by no means reached their former levels. This week sees the opening of a long Account covering the Christmas holidays and the New Year, and whether these are too near for markets wholly to recover remains to be seen, but confidence has once more been restored, and the current week should see a return to better business.

There were no special features in the Gas Market, which has come through the crisis practically unscathed. Business during the past fortnight, in common with other sections, has been very small, of course, though this is not uncommon in the Gas Market at this time of the year by reason of the near approach of final dividend payments. The prices of recorded transactions, however, show that values have been maintained, and in the official list it will be seen that there were only three fractional changes brought about by a widening of the margins. At the Provincial Exchanges, Bath consolidated hardened 2½ points to 126, while at Newcastle, Sunderland 6% maximum stock recorded a sharp rise of 8 to 141, and the local Company's units closed 3d. higher at 28s. In the Supplementary List, a big jump occurred in Guildford consolidated, the nominal quotation rising by 38 points to 225.

Current Sales of Gas Products

The London Market for Tar Products.

Dec. 14.

Prices of Tar Products generally remain unchanged at about the following levels:

Pitch, nominal at 34s. per ton f.o.b.
Creosote, 5¾d.
Refined tar, 3¾d.

Pure toluole, 2s. 4d. to 2s. 5d.; pure benzole, 1s. 7d. to 1s. 8d.; 95/160 solvent naphtha, about 1s. 7d.; and pyridine is firm, 90/160 being about 7s. All prices are per gallon naked at makers' works.

Tar Products in the Provinces.

Dec. 14.

The average prices of gas-works products during the week were: Gas-works tar, 18s. 3d. to 23s. 3d. Pitch—East Coast, 31s. to 33s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 31s. to 33s.* Toluole, naked, North, 1s. 11d. to 2s. Coal tar crude naphtha, in bulk, North, 8d. to 8¼d. Solvent naphtha, naked, North, 1s. 4d. to 1s. 5d. Heavy naphtha, North, 1s. 1½d. to 1s. 2½d. Creosote, *ex* works, in bulk, North, liquid and salty, 4¾d. to 5d.; low gravity, 4½d. to 4¾d. Heavy oils, in bulk, North, 5d. to 5¼d. Carbolic acid 60's, 2s. 7d. to 2s. 8d. Naphthalene, £18 to £20. Salts, 90s. to 95s., bags included. Anthracene "A" quality 4½d. to 4¾d. per minimum 40% purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Dec.* 12.

Market shows more activity and, although the heavy products still remain difficult, trading conditions in other products are satisfactory.

Crude gas-works tar.—The actual value is 34s. to 35s. per ton *ex* works in bulk.

Pitch is still difficult to sell, although prices are maintained at 30s. to 32s. 6d. per ton f.o.b. Glasgow for export, and 30s. per ton *ex* works in bulk for home trade.

Refined tar is quoted freely at 3d. per gallon f.o.r. for export, and 3¾d. per gallon *ex* works in buyers' packages for home trade.

Creosote oil.—Present stocks and production for some months forward are now well looked after. Values to-day can be taken as follows:—Specification oil, 5d. to 5¼d. per gallon; low gravity, 5d. to 5¼d. per gallon; neutral oil, 4¾d. to 5d. per gallon; all *ex* works in bulk.

Cresylic acid.—Available supplies are small and prices of spot lots are not lower than the following: Pale, 97/99%, 2s. 5d. to 2s. 7d. per gallon; dark, 97/99%, 2s. 2d. to 2s. 4d. per gallon; and pale, 99/100%, 2s. 9d. to 3s. per gallon; all *ex* works in buyers' packages.

Crude naphtha.—Production is at its lowest but value is unchanged at 5½d. to 6d. per gallon *ex* works in bulk, according to quality and district.

Solvent naphtha.—90/160 grade is 1s. 4½d. to 1s. 5d. per gallon, and 90/190 heavy naphtha is 11d. to 1s. per gallon.

Motor benzole is valued at 1s. 2½d. to 1s. 3d. per gallon.

Pyridines.—Prices are nominal at 6s. to 6s. 6d. per gallon for 90/160 grade, and 7s. to 7s. 6d. per gallon for 90/140 grade.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole	0	8¼	to	0	9	per gallon at works
Motor "	1	2	"	1	2½	" " "
90% "	1	3	"	1	3½	" " "
Pure "	1	7	"	1	7½	" " "

Contracts Advertised To-Day

Coal.

Market Harborough Gas Department. [p. 806.]

Diaries, Calendars, &c., Received

Seasonable gifts in the shape of useful diaries, calendars, &c., have been received from the undermentioned friends, whose good wishes are heartily reciprocated:

Parkinson & Cowan, Ltd.
Staveley Coal and Iron Company, Ltd.
John G. Stein & Co., Ltd.

Gas Undertakings' Results

Consumers' Gas Company of Toronto.

The eighty-eighth annual report of the operations of the Consumers' Gas Company for the year ended Sept. 30, 1936, states that the gross earnings for the year have exceeded by $101,537.97, the amount required to pay all costs of operation, taxes, interest charges, actual repairs and renewals, and the regular dividend. The volume of gas sold during the year has equalled that of the preceding year. The value of residuals, coke, tar, and ammonia, produced during the year was slightly lower than that of the previous year, due in part to the smaller quantity of coal carbonized. The sales of gas appliances by the Commercial Department have been very satisfactory in volume, being 10% greater than those of last year and 51% greater than the sales of 1934. Operating expenses, exclusive of taxes, have amounted to $4,690,809.19, a decrease when compared with 1935 of $106,243.38. Taxes, including Dominion income-tax, Ontario Corporations tax, workmen's compensation tax and municipal property tax, chargeable to the operations of the year have amounted to $509,560.65, an increase over last year of $19,047.25. The amount paid by the Company for customs duties, excise tax, sales tax, fees, and licences, during 1936 was $351,254.10. The Directors record with deep regret the death of their honoured President and General Manager, Mr. Arthur Hewitt, who, for a period of almost fifty years, rendered valuable services to the Company. At a meeting of the Directors held on Sept. 28, Mr. Thomas Bradshaw, who has served on the Board of Directors since April, 1930, was elected to the office of President. The vacancy on the Directorate caused by the death of Mr. Hewitt was filled by the election to the Board of Mr. Walter C. Laidlaw. Mr. Edward J. Tucker has been appointed to the position of General Manager.

Gas and coke production with the best advantages of scientific control . . . .

THE WEST SYSTEMS

- GLOVER-WEST VERTICAL RETORTS
- WESTVERTICAL CARBONIZING CHAMBERS
- COAL AND COKE-HANDLING & PREPARATION

Carbonizing Plants ordered in 1936 by—

THE **DUDLEY,** BRIERLEY HILL & DISTRICT GAS CO. (3RD ORDER)
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THE **ALTRINCHAM** GAS COMPANY (3RD ORDER)
THE **BILSTON** GAS LIGHT & COKE COMPANY (2ND ORDER)
THE **GRANGEMOUTH** CORPN. GAS DEPT. (2ND ORDER)
THE **JOHANNESBURG** MUNICIPAL GAS DEPT. (3RD ORDER)
THE **BALLYMENA** U.D.C. GAS DEPARTMENT (2ND ORDER)
THE **WORCESTER** NEW GAS LIGHT CO. (2ND ORDER)
THE **YEADON AND GUISELEY** GAS CO. (2ND ORDER)
THE **CARLISLE** CORPORATION GAS DEPT. (2ND ORDER)
THE **DUMBARTON** CORPORATION GAS DEPT. (2ND ORDER)
THE **BELFAST** CORPORATION GAS DEPT. (6TH ORDER)
THE **DUDLEY,** BRIERLEY HILL & DISTRICT GAS CO. (4TH ORDER)
THE **GALASHIELS** GAS LIGHT COMPANY
THE **CHARD** CORPORATION GAS DEPARTMENT

THE SOCIETY OF BRITISH GAS INDUSTRIES · 1905 ·

WEST'S GAS IMPROVEMENT COMPANY, LTD.

MANCHESTER: ALBION IRONWORKS, MILES PLATTING — 'Phone: COLLYHURST 2961 — 'Grams: "STOKER, MANCHESTER"

LONDON: COLUMBIA HOUSE, ALDWYCH, W.C. 2 — 'Phone: HOLBORN 4108 — 'Grams: "WESGASCO, ESTRAND, LONDON"

STOCK AND SHARE LIST

Official Quotations on the London Stock Exchange

Issue. £	Stock or Share	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Dec. 11	Rise or Fall on Week	Transactions, Lowest and Highest Prices During the Week.
1,767,439	Stk.	Sept. 7	7⅜	8	Alliance & Dublin Ord. ...	167—172	...	...
374,000	,,	June 22	4	4	Do. 4 p.c. Deb. ...	94—99	...	...
557,655	,,	Aug. 10	7	7	Barnet Ord. 7 p.c.	168—173	...	...
300,000	£	Oct. 5	1/9½	1/4½	Bombay, Ltd.	26/—28/-	...	...
179,305	Stk.	Aug. 10	9½	9½	Bournemouth sliding scale ...	220—230	...	...
590,407	,,	,,	7	7	Do. 7 p.c. max. ...	168—173	...	172½
493,960	,,	,,	6	6	Do. 6 p.c. Pref. ...	148—153	...	149½—152½
50,000	,,	June 22	3	3	Do. 3 p.c. Deb. ...	85—90	...	...
262,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	105—110	...	107—108½
335,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	125—130	...	...
357,900	,,	Aug. 10	7½	7½	Brighton, &c., 6 p.c. Con. ...	168—173	...	...
649,955	,,	,,	6½	6½	Do. 5 p.c. Con. ...	153—158	...	...
205,500	,,	,,	6	6	Do. 6 p.c. 'B' Pref.	145—150	...	...
855,000	,,	Oct. 5	8	7	British Ord.	157—162	...	159
100,000	,,	June 8	7	7	Do. 7 p.c. Pref.	151—156	...	...
350,000	,,	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	108—113	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	110—115	...	...
200,000	,,	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	100—103	...	...
100,000	10	22 May '33	6	4	Cape Town, Ltd.	1—3	...	...
100,000	10	6 Nov.'33	4½	4½	Do. 4½ p.c. Pref. ...	1—3	...	...
150,000	Stk.	June 22	4½	4½	Do. 4½ p.c. Deb. ...	80—85	...	...
626,860	,,	July 20	6	6	Cardiff Con. Ord.	128—133	...	...
237,860	,,	June 8	5	5	Do. 5 p.c. Red. Deb.	108—113	...	...
98,936	£	Oct. 19	2/-	2/-	Colombo Ord.	1⅛—1⅛	...	...
24,510	£	,,	1/4½	1/4½	Do. 7 p.c. Pref. ...	23/6—25/6	...	23/9
609,204	£	Oct. 5	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	17/6—19/6	...	...
296,053	£	,,	1/3·30	1/3·30	Do. 8 p.c. Pref	21/—23/-	...	...
1,775,005	Stk.	Aug. 10	5	5	Commercial Ord.	93—98	...	93—94
620,000	,,	Nov. 30	3	3	Do. 3 p.c. Deb. ...	83—88*	...	...
286,314	,,	Aug. 10	5	5	Do. 5 p.c. Deb. ...	122—127	...	124½
807,560	,,	Aug. 10	7	7	Croydon sliding scale ...	158—163	...	...
644,590	,,	,,	5	5	Do. max. div.	115—120	...	118
620,385	,,	June 22	5	5	Do. 5 p.c. Deb.... ...	125—130	...	127
239,000	,,	Aug. 10	8	5	East Hull Ord. 5 p.c....	108—111	...	...
184,555	,,	Aug. 10	6	6	East Surrey Ord. 5 p.c. ...	128—133	...	...
176,211	,,	June 8	5	5	Do. 5 p.c. Deb. ...	123—128	...	...
250,000	£	Nov. 16	6	4	Gas Consolidation Ord. ...	20/6—22/6	...	...
250,000	£	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	19/—21/-	...	...
19,284,128	Stk.	Aug. 10	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	26/—27/-a	...	26/1½—26/9
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.... ...	89—92	...	89½—90
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	104—108	− ½	104—105
8,602,497	,,	Nov. 30	3	3	Do. 3 p.c. Con. Deb. ...	84—87*	...	84—85
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	115—118*	...	116—116½
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	114—117*	...	114½—115½
700,000	,,	Sept. 7	...	25/5§	Do. 3½ p.c. Red. Deb. ...	102—10	...	103—104
270,466	,,	Aug. 24	6	6	Harrogate New Cons. ...	128—133	...	...
213,200	,,	Aug. 10	6	6	Hornsey Con. 3½ p.c. ...	133—138	...	...
5,600,000	,,	Nov. 2	12	8	Imperial Continental Cap. ...	140—150	− ½	140—148
223,130	,,	July 20	3½	3½	Do. 3½ p.c. Red. Debs.	92—97	...	...
285,242	,,	Aug. 24	8½	8½	Lea Bridge 5 p.c. Ord. ...	183—188	...	...
11,731	,,	,,	10	8	Maidstone Gas 5 p.c. Cap. Stk.	190—200	...	...
63,480	,,	June 22	3	3	Do. 3p.c.Prp.Db.Sk	80—85	...	...
75,000	,,	Nov. 30	†10	†10	Malta & Mediterranean ...	185—195*	...	...
392,000	—	Oct. 1	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	100—105	...	...
231,978	Stk.	Aug. 24	5	5	M.S. Utility 'C' Cons. ...	110—115	...	114
818,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	102—107	...	105—106
360,075	,,	June 22	4	4	Do. 4 p.c. Deb. ...	104—109	...	107
148,955	,,	,,	5	†5	Do. 5 p.c. Deb. ...	122—127	...	...
125,000	—	July 1	3½	3½	Do. 3½ p.c. Rd. Rg. Bds.	97—100	...	...
675,000	Stk.	Nov. 16	†6	†6	Montevideo, Ltd.	74—79*	...	...
225,000	,,	Aug. 10	7½	7½	North Middlesex 6 p.c. Con.	170—175	...	...
396,160	,,	Aug. 10	5	5	Northampton 5 p.c. max. ...	110—115	...	...
300,000	,,	Nov. 2	†7	†9	Oriental, Ltd....	168—173*	...	169
416,617	,,	June 8	8	8	Plymouth & Stonehouse 5 p.c.	168—173	...	...
504,416	,,	Aug. 10	8½	8½	Portsmouth & Gosport Cons.	178—183	...	...
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	114—119	...	...
73,350	,,	,,	...	5	Do. 5 p.c. Pref. ...	118—123	...	...
363,470	£	Sept. 21	1/-	1/-	Severn Val. Gas Cor. Ld. Ord.	21/6—23/6	...	22/9
454,510	£	,,	-/10½	-/10½	,, ,, 4½ p.c. Cum. Pref.	21/—23/-	...	...
133,201	Stk.	Aug. 24	5	8½	Shrewsbury 5 p.c. Ord. ...	145—150	...	...
90,000	10	June 8	13½	†4	South African...	4—5	...	...
1,152,635	£	Sept. 7	1/2½	1/2½	South East'n Gas Cn. Ld. Ord.	27/—29/-	...	27/6—28/-
845,511	£	,,	-/10½	-/10½	Do. 4½ p.c. Red. Cum. Pref.	21/—23/-	...	21/6
200,000	£	,,	4	4	Do. 4 p.c. Cum. Pref. ...	20/6—21/6	...	...
150,000	Stk.	Aug. 10	...	3½	Do. 3½ p.c. Red. Deb. ...	100—102	...	...
6,709,895	,,	Aug. 10	6½	5	South Met. Ord.	112—116	− ½	112½—115½
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf....	145—150	...	143½—145
850,000	,,	,,	4	4	Do. 4 p.c. Irred. Pf....	104—107	...	105—106
1,895,445	,,	June 22	3	3	Do. 3 p.c. Deb. ...	86—89	...	...
1,000,000	,,	July 6	5	5	Do. 5 p.c. Red. Deb.	114—117	...	...
1,543,795	,,	Aug. 10	6	6	South Suburban Ord. 5 p.c....	130—135	...	132—134
512,825	,,	,,	5	5	Do. 5 p.c. Pref....	122—127	...	...
500,000	,,	,,	4	4	Do. 4 p.c. Pref....	102—107	...	...
888,587	,,	June 8	5	5	Do. 5 p.c. Deb....	123—128	...	...
250,000	,,	,,	4	4	Do. 4 p.c. Deb....	102—107	...	105½
427,859	£	Nov. 16	1/2½	9½	S. Western Gas & Water Ord.	21/6—23/6	...	21/9
160,523	£	Oct. 19	-/10½	-/10½	Do. 4½% Red. Cum. Pref.	20/6—22/6	...	...
110,000	Stk.	June 22	4	4	Do. 4% Red. Deb. ...	100—105	...	...
647,740	,,	Aug. 10	5½	5	Southampton Ord. 5 p.c. ...	112—117	...	...
121,275	,,	June 8	4	4	Do. 4 p.c. Deb.	100—105	...	...
350,000	,,	Aug. 10	5½	5½	Swansea 5½ p.c. Red. Pref. ...	112—117	...	114½—115½
106,000	,,	June 8	6½	6½	Do. 6½ p.c. Red. Deb. ...	98—101	...	...
94,000	,,	,,	£35/-	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...	98½
1,076,490	,,	Aug. 10	6½	6½	Tottenham and District Ord.	152—157	...	153—154½
409,835	,,	,,	5½	5½	Do. 5½ p.c. Pref....	130—135	...	...
62,235	,,	,,	5	5	Do. 5 p.c. Pref. ...	120—125	...	123
371,850	,,	Nov. 30	4	4	Do. 4 p.c. Deb. ...	102—107*	...	...
369,774	,,	Aug. 10	7	7	Uxbridge, &c., 5 p.c. ...	165—170	...	...
108,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	120—125	...	125
1,340,521	,,	Aug. 10	7	7	Wandsworth Consolidated ...	159—164	...	161½—162
1,371,373	,,	,,	5	5	Do. 5 p.c. Pref. ...	122—127	...	...
500,000	,,	,,	...	...	Do. 4 p.c. Pref. ...	104½—107½	...	...
1,317,964	,,	June 8	5	5	Do. 5 p.c. Deb. ...	127—132	...	...
338,300	,,	,,	4	4	Do. 4 p.c. Deb. ...	103—108	...	...
499,735	,,	Aug. 10	7½	7	Watford and St. Albans Ord.	157—162	...	...
200,000	,,	,,	5	5	Do. 5 p.c. Pref. ...	120—125	...	...
200,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	131—136	...	...
200,000	,,	June 22	4	4	Do. 4 p.c. Red. Deb.	100—105	...	...
100,000	,,	,,	...	3½	Do. 3½ p.c. Red. Deb.	99—102	...	...
158,400	,,	Aug. 24	6b	5½	Winchester W. & G. 5 p.c. Con.	120—125	...	...

a.—The quotation is per £1 of Stock. *b.*—Paid £3, including 10s. on account of back dividends. * Ex div. † Paid free of income-tax. ‡ For year. § Actual.

Stock and Share List continued overleaf.

"Modern Gas Fitting"

PART VII.

of

Gas Fitting Pamphlets

Another of the Popular Series

of reprints, in booklet form, of the articles on "Modern Gas Fitting," contributed monthly to the

"GAS SALESMAN"

by

R. N. LeFevre, M.Inst.Gas E.

Officer-in-Charge of Training, The Gas Light and Coke Company, Assistant Head of Department of Gas Engineering and Supply, Westminster Technical Institute.

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Parts I to VI have been reprinted, and can also be supplied.

STOCK AND SHARE LIST—Cont.

Stocks Officially Quoted on Provincial Exchanges

Issue. £	Stock or Share	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations. Dec. 11.	Rise or Fall on Week.	Transactions, Lowest and Highest During the Week.
BRISTOL EXCHANGE.								
347,756	Stk.	July 20	6	5	Bath Cons.	125—127	+2½	...
1,667,250	,,	July 6	5	5	Bristol, 5 p.c. max.	118—120	...	...
120,420	,,	June 8	4	4	Do. 1st 4 p.c. Deb. ...	103—105	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	103—105	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	124—127	...	...
274,000	,,	Aug. 10	5	5	Newport (Mon.) 5 p.c. max....	110—114	...	...
13,200	12	Sept. 7	8½	7	Pontyp'l Gas & W. 10 p.c. 'A'	13½—14½	...	...
13,600	10	,,	6	5	Do. 7 p.c. 'B'	12—12½	...	...
40,000	10	,,	6	5	Do. 7 p.c. 'C'	12—12½	...	...
140,778	Stk.	Aug. 10	5	5	Weston-super-Mare Cons. ...	112—114	...	...
64,338	,,	June 22	4	4	Do. 4 p.c. Deb.	100—102	...	...
33,340	,,	,,	7½	7½	Do. 7½ p.c. Deb.	163—166	...	...
LIVERPOOL EXCHANGE.								
137,150	Stk.	Aug. 10	6½	5	Chester 5 p.c. Ord.	107—112	...	...
92,500	,,	June 8	4½	4	Do. 4 p.c. Pref.	98—102	...	...
32,540	,,	,,	3	3½	Do. 3½ p.c. Deb. ...	90—95	...	...
41,890	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	99—103	...	...
2,167,410	,,	Aug. 24	6	6	Liverpool 5 p.c. Ord. ...	132—134	...	...
245,800	,,	June 22	5	5	Do. 5 p.c. Red. Pref ...	103—108	...	...
306,083	,,	July 6	4	4	Do. 4 p.c. Deb. ...	104—106	...	...
106,280	,,	July 20	10	10	Preston 'A' 10 p.c. ...	198—208	...	...
188,219	,,	,,	7	7	Do. 'B' 7 p.c.	137—147	...	...
NEWCASTLE EXCHANGE.								
122,877	Stk.	Aug. 10	8	8	Blyth 5 p.c. Ord.	153—155	...	...
732,000	,,	Aug. 10	5	5	Hartlepool G. & W. Cn. & New	125—127	...	...
2,061,318	,,	Aug. 10	5½	5	Newcastle & Gateshead Con.	27/9—28/3 a	—/3	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	104—106	...	...
776,706	,,	June 22	3½	3½	Do. 3½ p.c. Deb. ...	100—102	...	...
277,285	,,	May 4	5	5	Do. 5 p.c. Deb. '43...	108—109	...	...
209,820	,,	Aug. 10	8½	8½	South Shields Con.	172—174	...	...
299,542	,,	Aug. 10	6	6	Sunderland 6 p.c. max.	140—142	+8	...
NOTTINGHAM EXCHANGE.								
542,270	Stk.	Aug. 10	10	7	Derby Con.	185—195	...	...
55,000	,,	June 22	4	4	Do. 4 p.c. Deb.	100—105	...	...
84,750	,,	Feb. 17	5	12	Long Eaton 'A' Ord. ...	...	...	...
50,000	,,	,,	4	10	Do. 'B' Ord. ...	...	...	...
20,000	10	June 8	5	5	Do. 5 p.c. Pref. ...	10—12	...	...
80,000	Stk.	,,	5	5	Do. 5 p.c. Deb. ...	117—122	...	...
SHEFFIELD EXCHANGE.								
10,000	Stk.	Aug. 10	10	10	Great Grimsby 'A' Ord. ...	220—230	...	...
6,500	,,	,,	10	10	Do. 'B' Ord. ...	220—230	...	...
79,000	,,	,,	10	10	Do. 'C' Ord. ...	205—215	...	...
1,806,339	,,	Aug. 24	6	6	Sheffield Cons.	146—148	...	...
95,000	,,	July 6	4	4	Do. 4 p.c. Deb.... ...	102—105	...	...

a The quotation is per £1 of Stock.

Supplementary List of Stocks and Shares not Officially Quoted

202,152	Stk.	Nov. 2	5	25/-a	Ascot Ord.	118—123	...	...
128,182	,,	July 6	...	5	Do. 5 p.c. Pref.	115—120	...	...
238,631	1	Nov. 16	5	5	Assd. Gas and Water Ord....	20/6—22 6	...	22/9
323,681	1	,,	4½	4½	Do. 4½ p.c. Cum. Pref. ...	21/—23/-	...	...
150,000	Stk.	Sept. 21	...	3½	Do. 3½ p.c. Red. Deb. ...	98—101	...	...
17,000	,,	Aug. 24	8	8	Bognor Orig. Ord. 'A' ...	175—185	...	...
62,210	,,	,,	8	8	Do. New Addl. 'A' ...	175—185	...	...
87,160	,,	,,	7	7	Do. New 7 p.c. max. ...	145—150	...	...
37,440	,,	Aug. 10	10	10	Cam.Univ. & Town 10 p.c.max.	205—215	...	...
125,970	,,	,,	7	7	Do. 7 p.c. max.	155—160	...	...
39,025	,,	,,	5	5	Do. 5 p.c. max.	108—113	...	...
65,000	,,	Aug. 10	8½	7½	Eastbourne 'A' 5 p.c. ...	175—180	...	...
198,000	,,	,,	7	6	Do. 'B' 3½ p.c.	142—147	...	...
112,312	,,	,,	5	5	Do. 5 p.c. Pref.	118—123	...	...
130,000	,,	June 22	5	5	Do. 5 p.c. Deb.	124—129	...	...
24,000	30	Aug. 10	8½	8½	Great Yarmouth 8½ p.c. max.	51—56	...	...
59,400	30	,,	7½	7½	Do. 7½ p.c. max.... ...	42—45	...	...
51,160	Stk.	June 8	5½	5½	Do. 5½ p.c. Deb.... ...	123—128	...	...
152,600	,,	Sept. 7	8	8	Guildford Cons.	220—230	+30	...
54,055	,,	,,	5	5	Do. 5 p.c. Pref.	114—119	...	...
68,250	,,	June 8	5	5	Do. 5 p.c. Deb.	120—125	...	...
156,600	,,	Aug. 24	7½	7½	Hampton Court Cons. ...	173—178	...	...
107,960	10	Oct. 5	5½	4	Mid Kent Ord.	10—11	...	...
230,940	Stk.	Aug. 10	10	10	Oxford & District Ord. ...	215—225	...	...
47,112	,,	,,	5	5	Do. 5 p.c. Pref.	118—123	...	...
50,000	,,	,,	6	6	Do. 6 p.c. Red. Pre ...	113—118	...	...
126,193	,,	Nov. 16	7½	7½	Peterborough Ord.	162—172	...	...
64,990	,,	Sept. 7	6½	7½	Redditch Ord.	133—143	...	...
166,850	,,	Aug. 10	9	8	Romford Ord.	168—178	...	...
60,000	,,	,,	4	4	Do. 4 p.c. Pref.	97—100	...	...
44,000	,,	Sept. 21	5	5	Do. 5 p.c. Deb.	120—125	...	...
10,950	,,	Aug. 24	8	8	Ryde Ord.	165—170	...	...
136,191	,,	Aug. 10	7	5	Scarborough Ord.	126—136	...	...
27,825	,,	Aug. 24	8	8	Shanklin & Ventnor Cons. ...	180—190	...	...
40,643	,,	Sept. 21	7	7	Slough Ord.	156—161	...	...
221,000	,,	June 22	5	5	Do. 5 p.c. Deb.	116—121	...	...
28,872	1	Nov. 2	5½	5½	S. Midland Gas Cpn.Ltd. Ord.	22/—24/-	...	...
28,866	1	Sept. 7	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	22/—24/-	...	...
137,730	Stk.	Aug. 10	7	7	Southgate & Dist. 7 p.c. max.	151—156	...	...
62,500	,,	,,	5	5	Do. 5 p.c. Pref.	120—125	...	124
117,228	,,	Aug. 10	6	5	Swindon Cons.	110—115	...	...
60,425	,,	June 22	5	5	Do. 5 p.c. Deb.	120—125	...	...
64,380	,,	June 8	5	5	Torquay and Paignton 5 p.c. Pf.	117—122	...	...
750,000	1	Oct. 5	5·52d.a	4	Utd. Kingdom Gas Cpn. Ord.	21/6—22/6	...	22/—22/3
468,574	1	,,	2½	2½	Do. 4½ p.c. Prefd. Ord....	20/—22/-	...	...
935,902	1	Nov. 16	4½	4½	Do. 4½ p.c. Cum. Pref. ...	22/6—23/6	...	22/6—22/7½
600,000	Stk.	Sept. 21	3½	3½	Do. 3½ p.c. Red. Deb. ...	99—102	...	101
130,000	,,	Aug. 10	8	5	Wakefield Ord.	140—145	...	...
81,650	,,	,,	5	5	Do. 5 p.c. max.	105—110	...	...
82,000	,,	July 20	6	6	Weymouth Ord.	105—110	...	...
98,384	,,	Aug. 10	6	6	Wolverhampton 6 p.c. Pref.	127—132	...	...
160,000	,,	June 8	5½	5½	Do. 5½ p.c. Rd. Db	107—112	...	...
370,000	,,	July 20	6	4	York Cons.	118—123	...	...
90,000	,,	June 22	5	5	Do. 5 p.c. Red. Deb. ...	110—115	...	...
133,640	,,	July 20	6½	6½	Yorkstown (Cam.) 5 p.c. Cons.	150—160	...	...
120,800	,,	,,	5	5	Do. 5 p.c. Pref.	123—128	...	...
35,000	,,	June 22	5½	5½	Do. 5½ p.c. Deb.... ...	130—135	...	...

a Actual.

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